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## Cruise Details and Biological Information from the Juvenile Rockfish Surveys Aboard the R/V *W.E. Ricker*, May 13-25, 1991, and the F/V *Island Sun*, June 3-11, 1991

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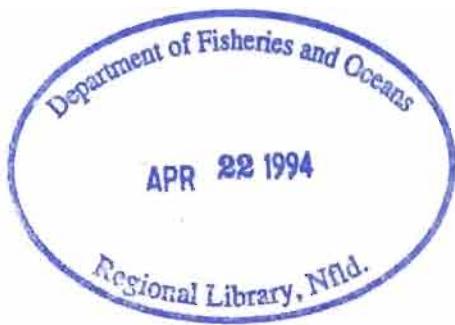
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JUVENILE ROCKFISH SURVEYS ABOARD THE R/V *W.E. RICKER*,  
MAY 13-25, 1991, AND THE F/V *ISLAND SUN*, JUNE 3-11, 1991.

by



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## ABSTRACT

Gillespie, G. E., R. D. Stanley and B. M. Leaman. 1993. Cruise details and biological information from the juvenile rockfish surveys aboard the R/V *W.E. RICKER*, May 13-25, 1991, and the F/V *ISLAND SUN*, June 3-11, 1991. Can. Data Rep. Fish. Aquat. Sci. 920: 113 p.

We report preliminary results of two research cruises to explore bathymetric distribution, habitat and trophic associations of juvenile rockfishes (*Sebastodes* spp.). We fished with bottom trawls, midwater trawls and sunken gillnets for juveniles of commercial shelf and slope rockfish species off Clayoquot Sound, on the west coast of Vancouver Island.

The R/V *W.E RICKER* trawled waters deeper than 20 m, and was used as a base for setting and retrieving sunken gillnets in the inshore waters of Sidney Inlet. We completed 22 bottom trawls and 9 gillnet sets.

The F/V *ISLAND SUN* trawled both inshore and offshore waters, and was used to set and retrieve sunken gillnets in the deeper waters off Clayoquot Sound. We completed 13 bottom trawls, 5 midwater trawls and 10 gillnet sets.

Biological samples were collected from 21 species of rockfish and 11 other species of groundfish. Specimens of juveniles of widow rockfish (*S. entomelas*), yellowtail rockfish (*Sebastodes flavidus*), canary rockfish (*S. pinniger*), redstripe rockfish (*S. proriger*) and sharpchin rockfish (*S. zacentrus*) were sampled for age, sex, maturity and stomach contents. Whole body samples of two dwarf species of rockfish, the Puget sound rockfish (*S. emphaeus*) and the pygmy rockfish (*S. wilsoni*), were also collected for examination of life history parameters and growth rates.

## RESUME

Gillespie, G. E., R. D. Stanley and B. M. Leaman. 1993. Cruise details and biological information from the juvenile rockfish surveys aboard the R/V *W.E. RICKER*, May 13-25, 1991, and the F/V *ISLAND SUN*, June 3-11, 1991. Can. Data Rep. Fish. Aquat. Sci. 920: 113 p.

Nous faisons état des résultats préliminaires de deux croisières de recherche visant à explorer la distribution en fonction de données bathymétriques, l'habitat et les associations trophiques de sébastes juvéniles (*Sebastodes spp.*). Nous avons pêché avec des chaluts de fond, des chaluts flottants et des filets maillants en profondeur pour capturer des juvéniles d'espèces commerciales sur le plateau et le talus continentaux, au large du détroit Clayoquot, sur la côte ouest de l'île Vancouver.

Le navire de recherche *W. E. RICKER* a chaluté par fonds de plus de 20 m; il a aussi servi de plate-forme pour mouiller et remonter les filets maillants en profondeur dans les eaux côtières du détroit Sidney. Nous avons fait 22 chalutages de fond et 9 mouillages de filets maillants.

Le navire de pêche *ISLAND SUN* a chaluté au large et dans les eaux côtières; il a servi à mouiller et remonter des filets maillants en profondeur dans les eaux profondes au large du détroit Clayoquot. Nous avons fait 13 chalutages de fond, 5 chalutages flottants et 10 mouillages de filets maillants.

Des prélèvements biologiques ont été faits sur des sujets appartenant à 21 espèces de sébastes et 11 autres espèces de poissons de fond. On a prélevé des spécimens de juvéniles de la veuve (*S. entomelas*), du sébaste à queue jaune (*Sebastodes flavidus*), du sébaste canari (*S. pinniger*), du sébaste à raie rouge (*S. proriger*) et du sébaste à menton pointu (*S. zacentrus*), pour déterminer leur âge, leur sexe, leur maturité et leur contenu stomacal. On a aussi prélevé des sujets entiers de deux espèces naines de sébaste, soit le sébaste paradeur (*S. emphacus*) et le sébaste pygmée (*S. wilsoni*) en vue d'un examen des paramètres de leur évolution biologique et de leur taux de croissance.



## INTRODUCTION

Rockfish species (*Sebastodes* spp.) are a principal component of the trawl fisheries off Canada's Pacific coast, as well as in the Gulf of Alaska and the Bering Sea. Despite their commercial importance, very little is known of the biology and ecology of juvenile rockfishes. Knowledge of the juvenile life history of commercially important rockfish species could provide biological information of use in the assessment of stocks and planning of fisheries. The detection of strong cohorts years before their recruitment to the fishery would be an important planning tool for both fishery managers and the fishing industry (Kendall and Lenarz 1987).

Rockfishes are long-lived fishes which exhibit large fluctuations in reproductive success. Rockfish populations are generally characterized by a wide age distribution, which is dominated by relatively few strong cohorts (Archibald et al. 1981). The underlying cause of reproductive success, or failure, in these species is not known. Attempts to examine correlations between recruitment and environmental factors are hampered by a lack of knowledge about larval and juvenile distribution.

The purpose of these cruises was to examine the bathymetric distribution, biological characteristics and ecology of the juveniles of commercially important rockfish species off the west coast of Vancouver Island. Bottom trawls were used to sample trawlable areas, and midwater trawls and sunken gillnets were used to sample rough bottom and shallow inshore areas. This report summarizes capture information, species composition of catches and biological information for rockfishes and other groundfish species encountered on these two cruises.

## METHODS

### VESSELS AND NETS

The survey used two vessels. The R/V *W.E. RICKER*, a 53.7 m stern trawler, was used to trawl offshore waters deeper than 20 m. We used an Atlantic Western IIIa bottom trawl, with a 2.5 cm herring bunt web liner in the codend. We used 1000 kg oval polyvalent steel doors. The net had a 24 m headrope and a 35.0 m footrope, and was rigged for two bridles. Inshore gillnets were set and retrieved by hand, using the inflatable work boats from the *W.E. RICKER*, when anchored in Sidney Inlet.

The F/V *ISLAND SUN*, a 24.7 m stern trawler, was used to trawl inshore and offshore waters and deploy sunken gillnets in deeper waters. We used an Atlantic Western II bottom trawl, with the same codend liner as was used on the *W.E. RICKER*. The net had 23.7 m headrope and a 32.6 m footrope. We used 818 kg slotted USA JET steel doors. We used a Super Mesh High Seas midwater trawl, with 58.5 m head and footropes, and the USA JET doors. The net opening was an estimated 16.5 m by 22.0 m. We used the same codend liner as was used in the bottom trawl. Sunken gillnets were set and retrieved over the stern, using the net drum.

Sunken gillnets were of two configurations. The large mesh nets were 45 m in length by a depth of 7.3 m, and made from 7.6 cm stretch monofilament mesh. The small mesh nets were a gang of four panels, each 7.6 m in length by a depth of 2.4 m, and made from 6.4 cm, 5.1 cm, 3.8 cm, and 2.5 cm stretch monofilament mesh. These nets were rigged using the configuration of Matthews et al. (1989), with 1 cm nylon line bridles, and anchored with short lengths of boom chain, which weighed 10 to 20 kg. Float lines were made from 1 cm nylon line, and attached to 150 cm diameter inflatable floats.

## BIOLOGICAL SAMPLING

Nomenclature used in this report follows Gillespie (1993). Methods of determining species composition follow those of Gillespie and Stanley (1989). An MSI Sea-Weigh 6260 load cell was used to obtain gross weight of the full codend of the net. The empty codend was weighed after dumping the catch on deck, and the net weight of fish caught was determined by subtraction. Fish captured in the sunken gillnets were not weighed, but all fish were measured.

We measured fork length (to the nearest cm), and determined sex and reproductive development for all species of rockfish captured during the cruise. Some samples from large catches of juveniles were frozen for later processing in the lab. Samples of 100 individuals for three species, Puget Sound rockfish (*Sebastodes emphaeus*), yellowtail rockfish (*S. flavidus*) and pygmy rockfish (*S. wilsoni*) were measured, weighed and then individually frozen. These were re-measured and re-weighed in the lab, to quantify shrinkage due to freezing and storage. Stomach samples were taken from most rockfish species and frozen for later analyses.

Non-rockfishes were measured and sexed, and the stomach contents of potential predators of juvenile rockfishes (dogfish, lingcod, halibut, adult rockfish and turbot) were examined during the cruises.

## RESULTS

### CATCH

We completed 35 bottom trawl tows, 22 from the *W.E. RICKER* and 13 from the *ISLAND SUN*, and 5 midwater tows from the *ISLAND SUN* (Appendix Tables 1 and 2). Tow 22 of the *W.E. RICKER* cruise was made to collect a tissue sample of yellowtail rockfish, *Sebastodes flavidus*, for genetic analysis. We completed 19 gillnet sets, 9 from the *W.E. RICKER* and 10 from the *ISLAND SUN* (Appendix Table 3 and 4).

Spiny dogfish (*Squalus acanthias*) was the species most commonly captured by trawl, on both cruises. Dogfish accounted for 42% of the total catch weight on the *W.E. RICKER*, and 25% of the catch weight on the *ISLAND SUN* (Tables 1 and 2). The main rockfish species encountered were Pacific ocean perch (*Sebastodes alutus*), redstripe rockfish (*S. proriger*), yellowtail rockfish (*S. flavidus*), canary rockfish (*S. pinniger*) and yellowmouth rockfish (*S. reedi*) on the *W.E. RICKER*, and yellowtail rockfish on the *ISLAND SUN*. Most of the Pacific ocean perch and redstripe rockfish captured by the *W.E. RICKER* were from tow 22, which was outside the juvenile survey area.

Spotted ratfish (*Hydrolagus colliei*) was the most numerous species captured by gillnet on the *W.E. RICKER* cruise. Copper rockfish (*S. caurinus*), yellowtail rockfish and black rockfish (*S. melanops*) were the most numerous rockfishes taken by gillnet from the *W.E. RICKER*. Spiny dogfish was the most numerous species taken by gillnet on the *ISLAND SUN*. Relatively large numbers of canary rockfish, yellowtail rockfish, bocaccio (*S. paucispinis*), lingcod (*Ophiodon elongatus*) and Pacific sanddab (*Citharichthys sordidus*) were also taken by gillnets from the *ISLAND SUN*.

### BIOLOGICAL SAMPLING

We sampled 3330 individuals of 21 species of rockfish and 687 individuals of 11 other groundfish species (Tables 3 through 76). The summaries of biological data are arranged alphabetically by scientific name (Appendix Table 5), with one table for each species and each gear type, from each cruise.

Further treatment of the data gathered on these cruises is underway, and results from these analyses, the freezing shrinkage experiment and the stomach samples will be presented in a future report.

## ACKNOWLEDGEMENTS

We thank Capt. Al Ranger and the officers and crew of the R/V *W.E RICKER*, and Capt. Jim Trimm and the crew of the *F/V ISLAND SUN*, for their assistance and cooperation. We thank Sarah Baldry for her efforts and dedication in the completion of the cruise objectives.

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Table 1. Catch (kg) and percentage of total trawl catch by species, R/V W.E. RICKER, juvenile rockfish survey, May 13-26, 1991. "Other" species are those which represented less than 1% of the total catch.

Species	Weight (kg)	Percent of Total
Spiny dogfish	5097.	42.45
<i>Sebastes alutus</i>	1664.	13.86
<i>S. proriger</i>	1505.	12.54
<i>S. flavidus</i>	629.	5.24
Walleye pollock	620.	5.16
Arrowtooth flounder	438.	3.65
Lingcod	385.	3.21
<i>S. pinniger</i>	284.	2.37
<i>S. reedi</i>	163.	1.36
English sole	135.	1.12
Pacific sanddab	128.	1.07
"Other" species	958.	7.97
	-----	-----
	12006.	100.00

Table 2. Catch (kg) and percentage of total trawl catch by species, F/V ISLAND SUN, juvenile rockfish survey, June 3-11, 1991. "Other" species are those which represented less than 1% of the total catch.

Species	Weight (kg)	Percent of Total Catch
Spiny dogfish	1072.	24.77
Spotted ratfish	891.	20.59
Arrowtooth flounder	735.	16.99
<i>Sebastes flavidus</i>	622.	14.37
Bigfin eelpout	421.	9.73
Pacific herring	137.	3.17
Rex sole	62.	1.43
Pacific halibut	51.	1.18
"Other" species	336.	7.77
	-----	-----
	4327.	100.00

Table 3. Length frequency summaries of sablefish, Anoplopoma fimbria, collected with bottom trawls on the R/V W.E. RICKER, May 13-26, 1991.

Area	032402		Grand Total	
	Date	200591	83	15
Depth (m)				
Set	M	F	M	F
Length (cm)				
44	1	-	1	-
45	-	-	-	-
46	-	-	-	-
47	-	-	-	-
48	-	-	-	-
49	-	-	-	-
50	-	-	-	-
51	-	-	-	-
52	-	-	-	-
53	-	-	-	-
54	-	-	-	-
55	-	-	-	-
56	-	-	-	-
57	-	-	-	-
58	-	-	-	-
59	-	-	-	-
60	-	1	-	1
Total	1	1	1	1

Table 4. Length frequency summaries of arrowtooth flounder, Atheresthes stomias, collected with bottom trawls on the R/V W.E. RICKER, May 13-26, 1991.

Area	032402		032402		032402		032402		032402		Grand Total		
	Date	190591	190591	190591	200591	83	63	15	21	M	F	M	F
Depth (m)													
Set	M	F	M	F	M	F	M	F	M	F	M	F	
Length (cm)													
34	1	-	-	-	-	-	-	-	-	-	1	-	
35	0	-	-	-	-	-	-	-	-	-	0	-	
36	0	-	-	-	-	-	-	-	-	-	0	-	
37	0	-	-	-	-	-	-	-	-	-	0	-	
38	0	-	-	-	1	-	-	-	-	-	1	-	
39	0	-	-	-	0	-	-	-	-	-	0	-	
40	0	-	-	-	1	-	-	-	-	-	1	-	
41	0	-	-	-	0	-	-	-	-	-	0	-	
42	0	-	-	-	2	1	-	-	-	-	2	1	
43	0	-	-	-	0	0	-	-	-	-	0	0	
44	0	-	-	-	1	0	-	-	-	-	1	0	
45	0	-	1	-	1	0	-	-	-	-	2	0	
46	0	-	1	-	0	0	-	-	-	-	1	0	
47	0	-	0	-	0	0	-	-	-	-	0	0	
48	0	-	0	-	0	0	-	-	-	-	0	0	
49	0	1	0	-	0	0	-	-	-	-	1	0	
50	0	0	0	-	0	0	-	-	-	-	0	0	
51	0	0	0	-	0	0	-	-	-	-	0	0	
52	1	0	0	1	0	0	-	1	-	1	1	3	
53	-	1	0	1	0	0	-	1	-	0	0	3	
54	-	0	1	1	1	0	-	0	-	0	2	1	
55	-	0	1	0	-	1	-	3	-	0	1	4	
56	-	1	0	0	-	0	-	0	-	0	0	1	
57	-	2	1	0	-	0	-	1	-	1	1	4	
58	-	0	0	0	-	0	-	0	-	1	0	1	
59	-	1	0	0	-	1	-	0	-	4	0	6	
60	-	0	0	2	-	-	-	0	-	1	0	3	
61	-	1	0	-	-	-	-	0	-	0	0	1	
62	-	1	0	-	-	-	-	0	-	0	0	1	
63	-	-	1	-	-	-	-	2	-	0	1	2	
64	-	-	-	-	-	-	-	2	-	0	-	2	
65	-	-	-	-	-	-	-	-	-	0	-	0	
66	-	-	-	-	-	-	-	-	-	0	-	0	
67	-	-	-	-	-	-	-	-	-	0	-	0	
68	-	-	-	-	-	-	-	-	-	0	-	0	
69	-	-	-	-	-	-	-	-	-	1	-	1	
Total	2	8	6	5	7	3	0	10	0	10	15	36	

Table 5. Length frequency summaries of arrowtooth flounder, Atheresthes stomias, collected with bottom and midwater trawls on the F/V ISLAND SUN, June 3-11, 1991.

Area	032404		Grand Total	
	Date	060691	Depth (m)	72
Set	08		M	F
Length (cm)	M	F	M	F
40	1	-	1	-
41	-	-	-	-
42	-	-	-	-
43	-	-	-	-
44	-	-	-	-
45	-	-	-	-
46	-	-	-	-
47	-	1	-	1
48	-	0	-	0
49	-	0	-	0
50	-	0	-	0
51	-	1	-	1
52	-	0	-	0
53	-	0	-	0
54	-	1	-	1
55	-	0	-	0
56	-	1	-	1
57	-	1	-	1
58	-	2	-	2
59	-	1	-	1
60	-	1	-	1
Total	1	9	1	9

Table 6. Length frequency summaries of Pacific sanddab, Citharichthys sordidus, collected with sunken gillnets on the F/V ISLAND SUN, June 3-11, 1991.

Area	032402		032402		Grand Total	
	Date	100691	Date	100691	Depth (m)	17
Set	08		10		Set	10
Length (cm)	M	F	M	F	M	F
15	-	-	-	1	-	1
16	-	-	-	-	-	0
17	-	-	-	-	-	0
18	-	-	-	-	-	0
19	-	-	-	-	-	0
20	-	-	-	-	-	0
21	-	-	-	-	-	0
22	1	-	-	-	1	0
23	0	-	-	-	0	0
24	0	3	-	-	0	3
25	1	4	-	-	1	4
26	-	3	-	-	-	3
27	-	3	-	-	-	3
28	-	3	-	-	-	3
29	-	2	-	-	-	2
30	-	2	-	-	-	2
31	-	1	-	-	-	1
Total	2	21	0	1	2	22

Table 7. Length frequency summaries of Pacific cod, Gadus macrocephalus, collected with bottom trawls on the R/V W.E. RICKER, May 13-26, 1991.

Area	032404		032402		032402		032402	
Date	150591		160591		160591		180591	
Depth (m)	35		49		51		50	
Set	08		09		10		11	
	M	F	M	F	M	F	M	F
Length (cm)								
49	-	-	-	-	-	-	1	-
50	-	-	-	-	-	-	-	-
51	-	-	-	1	-	-	-	-
52	-	-	-	-	-	1	-	-
53	-	-	-	-	-	0	-	-
54	-	-	-	-	-	0	-	-
55	-	-	-	-	-	0	-	-
56	-	-	-	-	-	0	-	-
57	-	-	-	-	-	1	-	-
58	-	-	-	-	-	0	-	-
59	-	1	-	-	-	0	-	-
60	-	1	-	-	-	1	-	-
61	-	1	-	-	-	0	-	-
62	-	0	-	-	-	0	-	-
63	-	0	-	-	-	0	-	-
64	-	1	-	-	-	0	-	-
65	-	0	-	-	-	0	-	-
66	-	0	-	-	-	0	-	-
67	-	0	-	-	-	0	-	1
68	-	0	-	-	-	0	-	-
69	-	0	-	-	-	0	-	-
70	-	0	-	-	-	0	-	-
71	-	0	-	-	-	0	-	-
72	-	0	-	-	-	0	-	-
73	-	0	-	-	-	1	-	-
74	-	0	-	-	-	-	-	-
75	-	0	-	-	-	-	-	-
76	-	0	-	-	-	-	-	-
77	-	0	-	-	-	-	-	-
78	-	0	-	-	-	-	-	-
79	-	0	-	-	-	-	-	-
80	-	0	-	-	-	-	-	-
81	-	1	-	-	-	-	-	-
Total	0	5	0	1	0	4	1	1

Table 7. (Cont'd)

Area	032402		032402		032402		032402		Grand Total	
	Date	190591	Date	190591	Date	200591	Date	220591	M	F
Depth (m)	65	75		83		63				
Set	12	14		15		21				
Length (cm)	M	F	M	F	M	F	M	F	M	F
25	-	1	-	-	-	-	-	-	-	1
26	-	0	-	-	-	-	-	-	-	0
27	-	0	-	-	1	-	-	-	1	0
28	-	0	-	-	-	-	-	-	0	0
29	-	0	-	-	-	-	-	-	0	0
30	-	0	-	-	-	-	-	-	0	0
31	-	0	-	-	-	-	-	-	0	0
32	-	0	-	-	-	-	-	-	0	0
33	-	0	-	-	-	-	-	-	0	0
34	-	0	-	-	-	-	-	-	0	0
35	-	0	-	-	-	-	-	-	0	0
36	-	0	-	-	-	-	-	-	0	0
37	-	0	-	-	-	-	-	-	0	0
38	-	0	-	-	-	-	-	-	0	0
39	-	0	-	-	-	-	-	-	0	0
40	-	0	-	-	-	-	-	-	0	0
41	-	0	-	-	-	-	-	1	0	1
42	-	0	-	1	-	-	-	0	0	1
43	-	1	-	2	-	-	-	0	0	3
44	-	-	-	0	-	-	-	0	0	0
45	1	-	1	0	-	-	1	0	3	0
46	-	-	0	0	-	1	1	0	1	1
47	-	-	0	0	-	0	0	0	0	0
48	-	-	0	0	-	0	0	0	0	0
49	-	-	0	0	-	0	0	1	1	1
50	-	-	0	0	-	0	0	0	0	0
51	-	-	0	0	-	0	0	0	0	1
52	-	-	0	0	-	0	1	0	1	1
53	-	-	0	0	-	0	0	0	0	0
54	-	-	0	0	-	0	0	0	0	0
55	-	-	0	0	-	0	0	0	0	0
56	-	-	0	0	-	0	0	0	0	0
57	-	-	0	0	-	0	0	0	0	1
58	-	-	0	0	-	0	0	1	0	1
59	-	-	0	0	-	0	0	0	0	1
60	-	-	1	0	-	0	0	-	1	2
61	-	-	-	0	-	0	-	-	-	1
62	-	-	-	1	-	0	-	-	-	1
63	-	-	-	-	0	-	-	-	-	0
64	-	-	-	-	0	-	-	-	-	1
65	-	-	-	-	0	-	-	-	-	0
66	-	-	-	-	0	-	-	-	-	0
67	-	-	-	-	0	-	-	-	-	1
68	-	-	-	-	-	1	-	-	-	1
69	-	-	-	-	-	-	-	-	-	0
70	-	-	-	-	-	-	-	-	-	0
71	-	-	-	-	-	-	-	-	-	0
72	-	-	-	-	-	-	-	-	-	0
73	-	-	-	-	-	-	-	-	-	1
74	-	-	-	-	-	-	-	-	-	0
75	-	-	-	-	-	-	-	-	-	0
76	-	-	-	-	-	-	-	-	-	0
77	-	-	-	-	-	-	-	-	-	0
78	-	-	-	-	-	-	-	-	-	0
79	-	-	-	-	-	-	-	-	-	0
80	-	-	-	-	-	-	-	-	-	0
81	-	-	-	-	-	-	-	-	-	1
Total	1	2	2	4	1	2	3	3	8	22

Table 8. Length frequency summaries of kelp greenling, *Hexagrammos decagrammus*, collected with sunken gillnets on the R/V W.E. RICKER, May 13-26, 1991.

Area	032403		032403		Grand Total		
	Date	170591	Date	190591	Set	02	
Depth (m)	5	5	Length (cm)	M	F	M	F
Set	02	06	32	-	-	1	-
Length (cm)	M	F	33	-	-	1	-
32	-	-	34	-	-	-	-
33	-	-	35	-	1	-	-
34	-	-	35	-	-	-	1
35	-	1	Total	0	1	2	0
						2	1

Table 9. Length frequency summaries of Pacific halibut *Hippoglossus stenolepis*, collected with bottom trawls on the R/V W.E. RICKER, May 13-26, 1991.

Area	032404		032404		032402		032402	
	Date	140591	Date	140591	Date	140591	Date	160591
Depth (m)	28	27	27	23	23	51	Set	01
Length (cm)	M	F	M	F	M	F	M	F
66	-	-	-	-	-	-	-	-
67	-	-	-	-	-	-	-	-
68	-	-	-	-	-	-	-	-
69	-	-	-	-	-	-	-	-
70	-	-	-	-	-	-	-	-
71	-	1	-	-	-	-	-	-
72	-	0	-	-	-	-	-	-
73	-	1	-	-	-	-	-	-
74	-	-	-	-	1	-	-	-
75	-	-	1	-	-	-	-	-
76	-	-	-	-	-	-	-	-
77	-	-	-	-	-	-	-	-
78	-	-	-	-	-	-	-	-
79	-	-	-	-	-	-	-	-
80	-	-	-	-	-	-	-	1
81	-	-	-	-	-	-	-	-
82	-	-	-	-	-	-	-	-
83	-	-	-	-	-	-	-	-
84	-	-	-	-	-	-	-	-
85	-	-	-	-	-	-	-	-
86	-	-	-	-	-	-	-	-
87	-	-	-	-	-	-	-	-
88	-	-	-	-	-	-	-	-
89	-	-	-	-	-	-	-	-
90	-	-	-	-	-	-	-	-
91	-	-	-	-	-	-	-	-
92	-	-	-	-	-	-	-	-
Total	0	2	1	0	1	0	0	1

Table 9. (Cont'd.)

Area	032402		032402		032402		032402		Grand Total	
Date	190591		190591		210591		220591			
Depth (m)	65		75		24		63			
Set	12		14		20		21			
	M	F	M	F	M	F	M	F	M	F
Length (cm)										
66	-	-	-	-	-	-	1	-	1	-
67	-	-	-	-	-	-	0	-	0	-
68	-	-	1	-	-	-	0	-	1	-
69	-	-	-	-	1	-	0	-	1	-
70	-	-	-	-	0	-	0	1	0	1
71	-	-	-	-	0	-	0	0	0	1
72	-	-	-	-	0	-	0	0	0	0
73	-	-	-	-	0	-	1	0	1	1
74	-	-	-	-	0	-	0	0	1	0
75	-	-	-	-	0	-	0	0	1	0
76	-	-	-	-	0	-	0	0	0	0
77	-	1	-	-	0	-	0	0	0	1
78	1	-	-	-	0	-	0	0	1	0
79	0	-	-	-	0	-	0	0	0	0
80	0	-	-	-	1	-	0	0	1	1
81	0	-	-	-	-	-	0	0	0	0
82	0	-	-	-	-	-	0	0	0	0
83	0	-	-	-	-	-	0	0	0	0
84	0	-	-	-	-	-	0	0	0	0
85	0	-	-	-	-	-	0	0	0	0
86	0	-	-	-	-	-	0	0	0	0
87	0	-	-	-	-	-	0	0	0	0
88	0	-	-	-	-	-	0	0	0	0
89	0	-	-	-	-	-	0	0	0	0
90	0	-	-	-	-	-	0	0	0	0
91	0	-	-	-	-	-	0	0	0	0
92	1	-	-	-	-	-	1	1	2	1
Total	2	1	1	0	2	0	3	2	10	6

Table 10. Length frequency summaries of Pacific halibut, Hippoglossus stenolepis, collected with bottom and midwater trawls on the F/V ISLAND SUN, June 3-11, 1991.

Area	032402		032402		Grand Total	
	Date	050691	Depth (m)	17	Set	01
Length (cm)	M	F	M	F	M	F
70	-	-	-	1	-	1
71	-	-	-	0	-	0
72	-	-	-	0	-	0
73	-	-	-	0	-	0
74	-	-	-	1	-	1
75	-	-	-	0	-	0
76	-	-	-	0	-	0
77	-	-	-	0	-	0
78	-	-	-	0	-	0
79	-	-	-	0	-	0
80	-	-	-	0	-	0
81	-	-	-	0	-	0
82	-	-	-	0	-	0
83	-	-	-	0	-	0
84	-	-	-	0	-	0
85	-	-	-	0	-	0
86	-	-	-	0	-	0
87	-	-	-	0	-	0
88	-	-	-	0	-	0
89	-	-	-	0	-	0
90	-	-	-	0	-	0
91	-	-	-	0	-	0
92	-	-	-	0	-	0
93	-	1	-	0	-	1
94	-	-	-	0	-	0
95	-	-	-	0	-	0
96	-	-	-	0	-	0
97	-	-	-	0	-	0
98	-	-	-	0	-	0
99	-	-	-	0	-	0
100	-	-	-	0	-	0
101	-	-	-	0	-	0
102	-	-	-	0	-	0
103	-	-	-	0	-	0
104	-	-	-	0	-	0
105	-	-	-	0	-	0
106	-	-	-	0	-	0
107	-	-	-	0	-	0
108	-	-	-	0	-	0
109	-	-	-	0	-	0
110	-	-	-	1	-	1
Total	0	1	0	3	0	4

Table 11. Length frequency summaries of Pacific halibut, Hippoglossus stenolepis, collected with sunken gillnets on the F/V ISLAND SUN, June 3-11, 1991.

Area	042501		Grand Total	
	Date	090691	Depth (m)	61
Set		06		
Length (cm)	M	F	M	F
94	1	-	1	-
Total	1	0	1	0

Table 12. Length frequency summaries of spotted ratfish, Hydrolagus colliei, collected with sunken gillnets on the R/V W.E. RICKER, May 13-26, 3-11, 1991. Lengths were measured from the tip of the snout to the posterior of the second dorsal fin.

Area	032403		032403		032403		032403		032403		042502		Grand Total	
Date	160591		170591		180591		200591		200591		220591			
Depth (m)	0		18		6		3		7		8			
Set	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Length (cm)														
30	-	-	1	-	-	-	-	-	-	-	-	-	1	-
31	-	1	0	1	-	-	-	-	-	-	-	-	0	2
32	-	0	1	1	-	-	-	-	-	-	-	-	1	1
33	-	1	1	0	-	-	-	-	-	-	-	-	1	1
34	2	0	3	0	1	-	-	-	-	-	-	1	6	1
35	3	0	1	1	1	-	-	-	1	-	-	0	6	1
36	3	0	-	1	0	-	-	-	-	-	-	0	3	1
37	-	1	-	-	1	-	-	-	-	-	-	0	1	1
38	-	1	-	-	-	-	-	-	-	-	-	0	-	1
39	-	0	-	-	-	-	-	-	-	-	-	0	-	0
40	-	0	-	-	-	-	-	1	-	-	-	0	-	1
41	-	1	-	-	-	-	-	-	-	-	-	1	-	2
42	-	-	-	-	-	1	-	-	-	-	-	-	-	1
Total	8	5	7	4	3	1	0	1	1	0	0	2	19	13

Table 13. Length frequency summaries of spotted ratfish, Hydrolagus colliei, collected with sunken gillnets on the F/V ISLAND SUN, June 3-11, 1991. Lengths were measured from the tip of the snout to the posterior of the second dorsal fin.

Area	032402		042501		032402		032402		Grand				
Date	080691		090691		100691		100691		Total				
Depth (m)	50		61		39		24						
Set	M	F	M	F	M	F	M	F	M	F			
Length (cm)													
34	1	-	-	-	1	-	-	-	1	-	-	-	-
35	-	-	1	-	0	-	-	-	1	-	-	-	-
36	-	-	-	-	1	-	1	-	2	-	-	-	-
37	-	-	-	-	-	-	0	-	0	-	-	-	-
38	-	-	-	-	-	-	0	-	0	-	-	-	-
39	-	-	-	-	-	-	0	-	0	-	-	-	-
40	-	-	-	-	-	-	1	-	1	-	-	-	-
Total	1	0	1	0	2	0	2	0	5	0			

Table 14. Length frequency summaries of Pacific hake, Merluccius productus, collected with sunken gillnets on the R/V W.E. RICKER, May 13-26, 3-11, 1991.

Area	032403		032403		032403		Grand				
Date	160591		170591		180591		Total				
Depth (m)	0		18		6						
Set	M	F	M	F	M	F	M	F			
Length (cm)											
35	1	-	-	-	-	-	1	-	-	-	-
36	-	-	-	-	-	-	-	-	-	-	-
37	-	-	-	-	-	-	-	-	-	-	-
38	-	-	-	-	-	-	-	-	-	-	-
39	-	-	-	-	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-	-	-	-	-
41	-	-	-	-	-	-	-	-	-	-	-
42	-	-	-	-	-	-	-	-	-	-	-
43	-	-	-	1	-	1	-	-	2	-	-
Total	1	0	0	1	0	1	1	2			

Table 15. Length frequency summaries of lingcod, *Ophiodon elongatus*, collected with bottom trawls on the R/V W.E. RICKER, May 13-26, 1991.

Area	032404	032402	032402	032404	032404	032402
Date	140591	140591	140591	150591	150591	160591
Depth (m)	27	26	23	40	35	49
Set	02	03	04	07	08	09
Length (cm)	M	F	M	F	M	F
28	1	-	-	-	-	-
29	0	-	-	-	-	-
30	1	-	-	-	-	-
31	0	-	-	-	-	-
32	0	-	-	-	-	-
33	0	-	-	-	-	-
34	0	1	-	-	-	-
35	0	0	-	-	-	-
36	0	0	-	-	-	-
37	0	0	-	-	-	-
38	0	0	-	-	-	-
39	0	0	-	-	-	-
40	0	0	-	-	-	-
41	0	0	-	-	-	-
42	0	0	-	-	-	-
43	0	0	-	-	-	-
44	0	0	-	-	1	-
45	0	0	-	-	-	-
46	0	0	-	-	-	-
47	0	1	-	-	-	-
48	0	-	-	-	-	-
49	0	-	-	-	-	-
50	0	-	-	-	-	-
51	0	-	-	-	-	-
52	0	-	-	-	-	-
53	0	-	-	-	-	-
54	0	-	-	-	-	-
55	0	-	-	-	-	-
56	0	-	-	-	-	-
57	0	-	-	-	-	-
58	0	-	-	-	-	-
59	0	-	-	-	-	-
60	0	-	-	-	-	-
61	0	-	1	-	-	-
62	0	-	0	-	-	-
63	0	-	0	-	-	-
64	0	-	1	-	1	-
65	0	-	0	-	-	-
66	0	-	0	-	-	1
67	0	-	0	-	-	0
68	0	-	1	1	-	0
69	0	-	0	0	-	1
70	1	-	0	0	-	0
71	1	-	0	0	-	0
72	-	-	0	0	-	1
73	-	-	1	0	-	0
74	-	-	0	0	-	0
75	-	-	0	0	-	1
76	-	-	0	0	-	0
77	-	-	1	0	-	0
78	-	-	0	1	-	1
79	-	-	0	1	-	-
80	-	-	1	-	-	-
81	-	-	1	-	-	-
82	-	-	-	-	-	-
83	-	-	-	-	-	-
84	-	-	-	-	-	-
85	-	-	-	-	-	-
86	-	-	-	-	-	-
87	-	-	-	-	-	-
88	-	-	-	-	-	-
89	-	-	-	-	-	-
90	-	-	-	-	-	-
91	-	-	-	-	-	-
92	-	-	-	-	-	-
93	-	-	-	-	-	-
94	-	-	-	-	-	-
95	-	-	-	-	-	-

Table 15. (Cont'd.)

Area	032404		032402		032402		032404		032404		032402	
Date	140591		140591		140591		150591		150591		160591	
Depth (m)	27		26		23		40		35		49	
Set	02		03		04		07		08		09	
Length (cm)	M	F	M	F	M	F	M	F	M	F	M	F
96	-	-	-	-	-	-	-	-	-	-	-	-
97	-	-	-	-	-	-	-	-	-	-	-	-
98	-	-	-	-	-	-	-	-	-	-	-	-
99	-	-	-	-	-	-	-	-	-	-	-	-
100	-	-	-	-	-	-	-	-	-	-	-	-
101	-	-	-	-	-	-	-	-	-	-	-	-
102	-	-	-	-	-	-	-	-	-	-	-	-
103	-	-	-	-	-	-	-	-	-	-	-	-
104	-	-	-	-	-	-	-	-	-	-	-	-
105	-	-	-	-	-	-	-	-	-	-	-	-
106	-	-	-	-	-	-	-	-	-	-	-	-
107	-	-	-	-	-	-	-	-	-	-	-	-
108	-	-	-	-	-	-	-	-	-	-	-	-
Total	4	2	7	3	1	1	1	1	1	4	0	1

Table 15. (Cont'd.)

Area	032402		032402		032402		032402		032402		032402	
Date	180591		190591		190591		190591		200591		200591	
Depth (m)	50		65		71		75		83		24	
Set	11		12		13		14		15		16	
	M	F	M	F	M	F	M	F	M	F	M	F
Length (cm)												
28	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-	-	-	-	-
33	-	-	-	-	-	-	-	-	-	-	-	-
34	-	-	-	-	-	-	-	-	-	-	-	-
35	-	-	-	-	-	-	-	-	-	-	-	-
36	-	-	-	-	-	-	-	-	-	-	-	-
37	-	-	-	-	-	-	-	-	-	-	-	-
38	-	-	-	-	-	-	-	-	-	-	-	-
39	-	-	-	-	-	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-	-	-	-	-	-
41	-	-	-	-	-	-	-	-	-	-	-	-
42	-	-	-	-	-	-	-	-	-	-	-	-
43	-	-	-	-	-	-	-	-	-	-	-	-
44	-	-	-	-	-	-	-	-	-	-	-	-
45	-	-	-	-	-	-	-	-	-	-	-	-
46	-	-	-	-	-	-	-	-	-	-	-	-
47	-	-	-	-	-	-	-	-	-	-	-	-
48	-	-	-	-	-	-	-	-	-	-	-	-
49	-	1	-	-	-	-	-	-	-	-	-	-
50	-	-	-	-	-	-	-	-	-	-	-	-
51	-	-	-	-	-	-	-	-	-	-	-	-
52	-	-	-	-	-	-	-	-	-	-	-	-
53	-	-	-	-	-	-	-	-	-	-	-	-
54	-	-	-	-	-	-	-	-	-	-	-	-
55	-	-	-	-	-	-	-	-	-	-	-	-
56	-	-	-	-	-	-	-	-	-	-	1	-
57	-	-	-	-	-	-	-	-	-	-	0	-
58	-	-	-	-	-	-	-	-	-	-	0	-
59	-	-	-	-	-	-	-	-	-	-	0	-
60	-	-	-	-	-	-	-	-	-	-	0	-
61	-	-	-	-	-	-	-	-	-	-	0	-
62	-	-	1	-	-	-	-	-	-	-	0	-
63	-	-	0	-	-	-	-	-	-	-	0	-
64	-	-	0	-	-	-	-	-	-	-	0	-
65	-	-	0	-	-	-	1	-	-	-	0	-
66	-	-	1	-	-	-	-	-	-	-	0	-
67	-	-	0	-	-	-	-	-	-	1	-	0
68	-	-	0	-	-	-	-	-	0	-	0	-
69	-	-	1	1	-	-	-	-	0	-	0	-
70	-	-	1	0	-	-	-	-	0	-	0	-
71	-	-	-	0	-	-	-	-	0	-	1	-
72	-	-	-	0	-	-	-	-	0	-	1	-
73	-	-	-	1	0	-	-	-	1	-	0	-
74	-	-	-	0	0	-	-	-	-	-	0	-
75	-	-	-	1	0	1	-	-	1	-	0	-
76	-	-	-	1	1	0	-	-	1	-	0	-
77	-	-	-	1	1	0	-	-	-	1	-	-
78	-	-	-	0	-	0	-	-	-	0	-	-
79	-	-	-	0	-	0	-	-	-	0	-	-
80	-	-	-	0	-	0	-	-	-	1	-	1
81	-	-	-	0	-	0	-	-	-	0	-	-
82	-	-	-	0	-	0	-	-	-	0	-	-
83	-	-	-	0	-	0	-	-	-	0	-	-
84	-	-	-	0	-	0	-	-	-	0	-	-
85	-	-	-	0	-	0	-	-	-	0	-	-
86	-	-	-	0	-	0	-	-	-	0	-	-
87	-	-	-	1	-	0	-	-	-	0	-	-
88	-	-	-	1	-	0	-	-	-	1	-	-
89	-	-	-	0	-	0	-	-	-	0	-	-
90	-	-	-	0	-	1	-	-	-	0	-	-
91	-	-	-	0	-	-	-	-	-	0	-	-
92	-	-	-	0	-	-	-	-	-	0	-	-
93	-	-	-	0	-	-	-	-	-	0	-	-
94	-	-	-	0	-	-	-	-	-	0	-	-
95	-	-	-	0	-	-	-	-	-	0	-	-

Table 15. (Cont'd.)

Area	032402		032402		032402		032402		032402		032402	
Date	180591		190591		190591		190591		200591		200591	
Depth (m)	50		65		71		75		83		24	
Set	11		12		13		14		15		16	
Length (cm)	M	F	M	F	M	F	M	F	M	F	M	F
96	-	-	-	0	-	-	-	-	-	0	-	-
97	-	-	-	0	-	-	-	-	-	0	-	-
98	-	-	-	2	-	-	-	-	-	0	-	-
99	-	-	-	0	-	-	-	-	-	0	-	-
100	-	-	-	0	-	-	-	-	-	0	-	-
101	-	-	-	0	-	-	-	-	-	0	-	-
102	-	-	-	0	-	-	-	-	-	0	-	-
103	-	-	-	0	-	-	-	-	-	0	-	-
104	-	-	-	0	-	-	-	-	-	0	-	-
105	-	-	-	0	-	-	-	-	-	1	-	-
106	-	-	-	0	-	-	-	-	-	-	-	-
107	-	-	-	0	-	-	-	-	-	-	-	-
108	-	-	-	1	-	-	-	-	-	-	-	-
Total	0	1	3	9	2	2	1	1	2	6	2	1

Table 15. (Cont'd.)

Table 15. (Cont'd)

Area	032402		032404		032404		032402		032402		Grand Total	
Date	210591		210591		210591		210591		220591			
Depth (m)	29		20		21		24		63			
Set	17		18		19		20		21			
Length (cm)	M	F	M	F	M	F	M	F	M	F	M	F
96	-	-	-	-	-	-	-	-	-	-	-	0
97	-	-	-	-	-	-	-	-	-	-	-	0
98	-	-	-	-	-	-	-	-	-	-	-	2
99	-	-	-	-	-	-	-	-	-	-	-	0
100	-	-	-	-	-	-	-	-	-	-	-	0
101	-	-	-	-	-	-	-	-	-	-	-	0
102	-	-	-	-	-	-	-	-	-	-	-	0
103	-	-	-	-	-	-	-	-	-	-	-	0
104	-	-	-	-	-	-	-	-	-	-	-	0
105	-	-	-	-	-	-	-	-	-	-	-	1
106	-	-	-	-	-	-	-	-	-	-	-	0
107	-	-	-	-	-	-	-	-	-	-	-	0
108	-	-	-	-	-	-	-	-	-	-	-	1
Total	1	0	3	1	0	1	1	2	8	12	37	48

Table 16. Length frequency summaries of lingcod, *Ophiodon elongatus*, collected with sunken gillnets on the R/V W.E. RICKER, May 13-26, 3-11, 1991.

Area	032403		032403		042502		Grand Total	
	Date	170591	Date	190591	Date	220591		
Depth (m)	5	5	6	8	9			
Set	02		06		09			
	M	F	M	F	M	F	M	F
Length (cm)								
25	-	-	-	-	1	-	1	-
26	-	-	-	-	-	-	0	-
27	-	-	-	-	-	-	0	-
28	-	-	-	-	-	-	0	-
29	-	-	-	-	-	-	0	-
30	-	1	-	-	-	-	0	1
31	-	-	-	-	-	-	0	-
32	-	-	-	-	-	-	0	-
33	-	-	-	-	-	-	0	-
34	-	-	-	-	-	-	0	-
35	-	-	-	-	-	-	0	-
36	-	-	-	-	-	-	0	-
37	-	-	-	-	-	-	0	-
38	-	-	-	-	-	-	0	-
39	-	-	-	-	-	-	0	-
40	-	-	-	-	-	-	0	-
41	-	-	-	-	-	-	0	-
42	-	-	-	-	-	-	0	-
43	-	-	-	-	-	-	0	-
44	-	-	-	-	-	-	0	-
45	-	-	-	-	-	-	0	-
46	-	-	-	-	-	-	0	-
47	-	-	-	-	-	-	0	-
48	-	-	-	-	-	-	0	-
49	-	-	1	-	-	-	1	-
Total	0	1	1	0	1	0	2	1

Table 17. Length frequency summaries of lingcod, *Ophiodon elongatus*, collected with bottom and midwater trawls on the F/V ISLAND SUN, June 3-11, 1991.

Area	032402		032402		Grand Total	
	Date	050691	Date	080691		
Depth (m)	17	69				
Set	01		15			
	M	F	M	F	M	F
Length (cm)						
70	-	-	-	-	-	-
71	-	-	-	-	-	-
72	-	1	-	-	-	1
73	-	-	-	-	-	0
74	-	-	-	-	-	0
75	-	-	-	-	-	0
76	-	-	-	1	-	1
77	-	-	-	0	-	0
78	-	-	-	0	-	0
79	-	-	-	0	-	0
80	-	-	-	0	-	0
81	-	-	-	0	-	0
82	-	-	-	0	-	0
83	-	-	-	0	-	0
84	-	-	-	0	-	0
85	-	-	-	0	-	0
86	-	-	-	0	-	0
87	-	-	-	1	-	1
88	-	-	-	1	-	1
Total	0	1	0	3	0	4

Table 18. Length frequency summaries of lingcod, *Ophiodon elongatus*, collected with sunken gillnets on the F/V ISLAND SUN, June 3-11, 1991.

Area	032402		032402		042501		042501		032402		Grand Total	
	Date	080691	Date	080691	Depth (m)	50	Depth (m)	61	Depth (m)	66	Depth (m)	39
Set	03		04		06		07		08			
Length (cm)	M	F	M	F	M	F	M	F	M	F	M	F
44	-	-	-	-	-	-	-	-	-	1	-	1
45	-	-	-	-	-	-	-	-	-	0	-	0
46	-	-	-	-	-	-	-	-	-	0	-	0
47	-	-	-	-	-	-	-	-	-	0	-	0
48	-	-	-	-	-	-	-	-	-	0	-	0
49	-	-	-	-	-	-	-	-	-	0	-	0
50	-	-	-	-	-	-	-	-	-	0	-	0
51	-	-	-	-	-	-	-	-	-	0	-	0
52	-	-	-	-	-	-	-	-	-	0	-	0
53	-	-	-	-	-	-	-	-	-	0	-	0
54	-	-	-	-	-	-	-	-	-	0	-	0
55	-	-	-	-	-	-	-	-	-	0	-	0
56	-	-	-	-	-	-	-	-	-	0	-	0
57	-	-	-	-	-	-	-	-	-	0	-	0
58	-	-	-	-	-	-	-	-	-	0	-	0
59	-	-	-	-	-	-	-	-	-	0	-	0
60	-	-	-	-	-	-	-	-	-	1	0	1
61	-	-	-	-	-	-	-	-	-	0	0	0
62	-	-	-	-	-	-	-	-	-	0	0	0
63	-	-	1	-	-	-	-	-	-	0	0	1
64	-	-	-	-	-	-	-	-	-	2	0	2
65	-	-	-	-	-	-	-	-	-	1	0	1
66	1	-	-	-	-	-	-	-	-	1	0	2
67	-	-	-	-	-	-	1	-	-	0	0	1
68	-	-	-	-	-	-	-	-	-	0	0	0
69	-	-	-	-	1	-	-	-	-	0	0	1
70	-	-	-	-	-	-	-	-	-	0	-	0
71	-	-	-	-	-	-	-	-	-	0	-	0
72	-	-	-	-	-	-	-	-	-	0	-	0
73	-	-	-	-	-	-	-	-	-	1	-	1
74	-	-	-	-	-	-	-	-	-	0	-	1
75	-	-	-	-	-	-	-	-	-	0	-	1
76	-	-	-	-	-	-	-	-	-	0	-	0
77	-	1	-	-	-	-	-	-	-	0	-	1
78	-	-	-	-	-	-	-	-	-	0	-	0
79	-	-	-	-	-	-	-	-	-	1	-	1
80	-	-	-	-	-	-	-	-	-	0	-	0
81	-	-	-	-	-	-	-	-	-	0	-	0
82	-	-	-	-	-	-	-	-	-	0	-	0
83	-	-	-	-	-	-	-	-	-	0	-	0
84	-	-	-	-	-	-	-	-	-	0	-	0
85	-	-	-	-	-	-	-	-	-	0	-	0
86	-	-	-	-	-	-	1	-	-	0	-	1
87	-	-	-	-	-	-	0	-	-	0	-	0
88	-	-	-	-	-	-	1	-	-	0	-	1
89	-	-	-	-	-	-	0	-	-	0	-	0
90	-	-	-	-	-	-	0	-	-	0	-	0
91	-	-	-	-	-	-	0	-	-	0	-	0
92	-	-	-	-	-	-	1	-	-	0	-	1
93	-	-	-	-	-	-	0	-	-	1	-	1
94	-	-	-	-	-	-	0	-	-	0	-	0
95	-	-	-	-	-	-	0	-	-	0	-	0
96	-	-	-	-	-	-	1	-	-	0	-	1
97	-	-	-	-	-	-	0	-	-	0	-	0
98	-	-	-	-	-	-	1	-	-	0	-	1
99	-	-	-	-	-	-	0	-	-	0	-	0
100	-	-	-	-	-	-	0	-	-	0	-	0
101	-	-	-	-	-	-	0	-	-	0	-	0
102	-	-	-	-	-	-	0	-	-	0	-	0
103	-	-	-	-	-	-	0	-	-	0	-	0
104	-	-	-	-	-	-	0	-	-	0	-	0
105	-	-	-	-	-	-	0	-	-	0	-	0
106	-	-	-	-	-	-	0	-	-	0	-	0
107	-	-	-	-	-	-	0	-	-	0	-	0
108	-	-	-	-	-	-	0	-	-	0	-	0
109	-	-	-	-	-	-	0	-	-	0	-	0
110	-	-	-	-	-	-	1	-	-	0	-	1
Total	1	1	1	0	1	6	1	3	5	3	9	13

Table 19. Length frequency summaries (total length) of longnose skate, Raja rhina, collected with sunken gillnets on the R/V W.E. RICKER, May 13-26, 3-11, 1991.

Area	032403	Grand		
Date	170591	Total		
Depth (m)	18			
Set	03			
Length (cm)	M	F	M	
34	-	1	-	1
35	-	0	-	0
36	-	0	-	0
37	-	0	-	0
38	-	0	-	0
39	-	0	-	0
40	-	0	-	0
41	-	0	-	0
42	-	1	-	1
43	-	0	-	0
44	-	1	-	1
Total	0	3	0	3

Table 20. Length frequency summaries (total length) of longnose skate, Raja rhina, collected with sunken gillnets on the F/V ISLAND SUN, June 3-11, 1991.

Area	032402	Grand		
Date	100691	Total		
Depth (m)	39			
Set	08			
Length (cm)	M	F	M	
84	1	-	1	-
85	0	-	0	-
86	0	-	0	-
87	0	-	0	-
88	0	-	0	-
89	0	-	0	-
90	0	-	0	-
91	0	-	0	-
92	0	-	0	-
93	0	-	0	-
94	0	-	0	-
95	0	-	0	-
96	0	-	0	-
97	0	-	0	-
98	0	-	0	-
99	0	-	0	-
100	1	-	1	-
Total	2	0	2	0

Table 21. Length frequency and reproductive development summaries of Pacific ocean perch, Sebastodes alutus, collected with bottom trawls on the R/V W.E. RICKER, May 13-26, 1991.

Table 22. Length frequency and reproductive development summaries of silvergray rockfish, Sebastodes brevispinis, collected with bottom trawls on the R/V W.E. RICKER, May 13-26, 1991.

Table 23. Length frequency and reproductive development summaries of silvergray rockfish, Sebastodes brevispinis, collected with sunken gillnets on the F/V ISLAND SUN, June 3-11, 1991.

Area	032402		Grand Total	
Date	080691			
Depth (m)	50			
Set	03			
	M	F	M	F
Length (cm)				
29	1	-	1	-
30	1	-	1	-
31	0	-	0	-
32	0	-	0	-
33	0	-	0	-
34	0	-	0	-
35	0	-	0	-
36	0	-	0	-
37	0	-	0	-
38	0	-	0	-
39	0	-	0	-
40	0	-	0	-
41	0	-	0	-
42	1	-	1	-
43	0	-	0	-
44	0	-	0	-
45	1	-	1	-
Total	4	0	4	0
Reproductive Development				
1	3	0	3	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	1	0	1	0
8	0	0	0	0

Table 24. Length frequency and reproductive development summaries of copper rockfish, Sebastodes caurinus, collected with bottom trawls on the R/V W.E. RICKER, May 13-26, 1991.

Area	032402		Grand Total	
Date	210591			
Depth (m)	24			
Set	20			
	M	F	M	F
Length (cm)				
35	1	-	1	-
36	0	-	0	-
37	0	-	0	-
38	0	1	0	1
39	0	0	0	0
40	0	1	0	1
41	0	-	0	-
42	0	-	0	-
43	1	-	1	-
44	0	-	0	-
45	0	-	0	-
46	0	-	0	-
47	0	-	0	-
48	1	-	1	-
Total	3	2	3	2
Reproductive Development				
1	1	0	1	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	1	0	1
6	0	0	0	0
7	2	1	2	1
8	0	0	0	0

Table 25. Length frequency and reproductive development summaries of copper rockfish, Sebastodes caurinus, collected with sunken gillnets on the R/V W.E. RICKER, May 13-26, 1991.

Table 26. Length frequency and reproductive development summaries of copper rockfish, Sebastodes caurinus, collected with bottom and midwater trawls on the F/V ISLAND SUN, June 3-11, 1991.

Table 27. Length frequency and reproductive development summaries of copper rockfish, Sebastodes caurinus, collected with sunken gillnets on the F/V ISLAND SUN, June 3-11, 1991.

Area Date Depth (m) Set	032402		032402		Grand Total	
	M	F	M	F	M	F
<b>Length (cm)</b>						
29	1	-	-	-	1	-
30	-	-	-	-	0	-
31	-	-	-	-	0	-
32	-	-	-	-	0	-
33	-	-	-	-	0	-
34	-	-	-	-	0	-
35	-	-	-	-	0	-
36	-	-	-	-	0	-
37	-	-	-	-	0	-
38	-	-	-	-	0	-
39	-	1	-	-	0	1
40	-	-	1	-	1	0
41	-	-	1	-	1	0
42	-	-	-	-	-	0
43	-	-	-	-	-	0
44	-	-	-	-	-	0
45	-	-	-	-	-	0
46	-	-	-	-	-	0
47	-	-	-	2	-	2
Total	1	1	2	2	3	3
<b>Reproductive Development</b>						
1	1	0	0	0	1	0
2	0	1	0	0	0	1
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	2	2	2	2
8	0	0	0	0	0	0

Table 28. Length frequency and reproductive development summaries of darkblotched rockfish, Sebastodes crameri, collected with bottom trawls on the R/V W.E. RICKER, May 13-26, 1991.

Area Date Depth (m) Set	032402		032402		Grand Total	
	M	F	M	F	M	F
<b>Length (cm)</b>						
11	-	2	-	-	-	2
12	-	-	-	-	-	0
13	-	-	1	-	1	0
14	-	-	2	1	2	1
15	-	-	2	2	2	2
16	-	-	1	-	1	-
Total	0	2	6	3	6	5
<b>Reproductive Development</b>						
1	0	2	6	3	6	5
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0

Table 29. Length frequency and reproductive development summaries of greenstriped rockfish, Sebastodes elongatus, collected with bottom trawls on the R/V W.E. RICKER, May 13-26, 1991.

Table 30. Length frequency and reproductive development summaries of greenstriped rockfish, Sebastodes elongatus, collected with bottom and midwater trawls on the F/V ISLAND SUN, June 3-11, 1991.

Area	042501	Grand Total	
Date	070691		
Depth (m)	65		
Set	12		
Length (cm)	M	F	M
23	1	-	1
24	3	-	3
25	-	1	-
26	-	0	-
27	-	1	-
28	-	1	-
29	-	0	-
30	-	0	-
31	-	0	-
32	-	0	-
33	-	0	-
34	-	0	-
35	-	0	-
36	-	1	-
Total	4	4	4
Reproductive Development			
1	4	1	4
2	0	0	0
3	0	0	0
4	0	0	0
5	0	3	0
6	0	0	0
7	0	0	0
8	0	0	0

Table 31. Length frequency and reproductive development summaries of Puget Sound rockfish, Sebastodes emphaeus, collected with bottom trawls on the R/V W.E. RICKER, May 13-26, 1991.

Area Date Depth (m) Set	032402		032402		032402		Grand Total	
	200591	24	200591	24	210591	24		
	M	F	M	F	M	F	M	F
Length (cm)								
9	1	1	4	-	-	-	5	1
10	4	2	4	5	-	-	8	7
11	25	2	32	2	-	-	57	4
12	11	6	22	17	-	-	33	23
13	1	20	5	115	-	1	6	136
14	-	15	1	20	-	0	1	35
15	-	9	0	5	-	4	0	18
16	-	7	0	3	-	0	0	10
17	-	-	0	-	-	-	0	-
18	-	-	1	-	-	-	1	-
Total	42	62	69	167	0	5	111	234
Reproductive Development								
1	0	3	3	5	0	0	3	8
2	4	2	66	6	0	0	70	8
3	0	57	0	156	0	0	0	213
4	0	0	0	0	0	5	0	5
5	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0
7	38	0	0	0	0	0	38	0
8	0	0	0	0	0	0	0	0

Table 32. Length frequency and reproductive development summaries of Puget Sound rockfish, Sebastodes emphaeus, collected with bottom and midwater trawls on the F/V ISLAND SUN, June 3-11, 1991.

Area Date Depth (m) Set	032402		032402		Grand Total	
	050691	17	080691	62		
	M	F	M	F	M	F
Length (cm)						
9	-	1	-	-	-	1
10	-	4	-	-	-	4
11	-	-	2	1	2	1
12	-	-	3	2	3	2
13	-	-	-	1	-	1
Total	0	5	5	4	5	9
Reproductive Development						
1	0	0	0	0	0	0
2	0	2	2	1	2	3
3	0	3	0	3	0	6
4	0	0	3	0	3	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0

Table 33. Length frequency and reproductive development summaries of widow rockfish, Sebastodes entomelas, collected with bottom and midwater trawls on the F/V ISLAND SUN, June 3-11, 1991.

Area	042501		032402		032402		Grand Total	
Date	070691		080691		100691			
Depth (m)	65		62		37			
Set	12		14		18			
Length (cm)	M	F	M	F	M	F	M	F
22	-	-	-	-	1	-	1	-
23	-	-	-	-	0	1	0	1
24	-	-	-	-	1	1	1	1
25	-	-	-	-	2	1	2	1
26	-	-	-	-	3	1	3	1
27	-	-	-	-	0	2	0	2
28	-	-	-	-	3	9	3	9
29	-	-	1	2	4	7	5	9
30	-	-	0	2	3	4	3	6
31	-	-	0	0	2	4	2	4
32	-	-	1	0	4	2	5	2
33	-	-	2	0	1	2	3	2
34	-	-	0	0	1	1	1	1
35	-	-	1	1	0	1	1	2
36	-	-	-	-	0	-	0	0
37	-	-	-	-	1	-	1	0
38	-	-	-	-	-	-	-	0
39	-	-	-	-	-	-	-	0
40	-	-	-	-	-	-	-	0
41	-	-	-	-	-	-	-	0
42	-	-	-	-	-	-	-	0
43	-	-	-	-	-	-	-	0
44	-	-	-	-	-	-	-	0
45	-	-	-	-	-	-	-	0
46	-	-	-	-	-	-	-	0
47	-	-	-	-	-	-	-	0
48	-	-	-	-	-	-	-	0
49	-	-	-	-	-	-	-	0
50	-	-	-	-	-	-	-	0
51	-	-	-	-	-	-	-	0
52	-	-	-	-	-	-	-	0
53	-	1	-	-	-	-	-	1
Total	0	1	5	5	26	36	31	42
Reproductive Development								
1	0	0	5	5	26	36	31	41
2	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0
7	0	1	0	0	0	0	0	1
8	0	0	0	0	0	0	0	0

Table 34. Length frequency and reproductive development summaries of widow rockfish, Sebastodes entomelas, collected with sunken gillnets on the F/V ISLAND SUN, June 3-11, 1991.

Area	032402		Grand Total	
Date	100691			
Depth (m)	39			
Set	08			
Length (cm)	M	F	M	F
36	-	1	-	1
Total	0	1	0	1
Reproductive Development				
1	0	1	0	1
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0

Table 35. Length frequency and reproductive development summaries of yellowtail rockfish, Sebastodes flavidus, collected with bottom trawls on the R/V W.E. RICKER, May 13-26, 1991.

Table 35. (Cont'd.)

Table 36. Length frequency and reproductive development summaries of yellowtail rockfish, Sebastodes flavidus, collected with sunken gillnets on the R/V W.E. RICKER, May 13-26, 1991.

Table 37. Length frequency and reproductive development summaries of yellowtail rockfish, *Sebastodes* *flavidus*, collected with bottom and midwater trawls on the F/V ISLAND SUN, June 3-11, 1991.

Table 37. (Cont'd.)

Table 37. (Cont'd.)

Area	042501		032402		Grand Total	
	Date	090691	Depth (m)	64	100691	37
Set	17		18			
	M	F	M	F	M	F
Length (cm)						
9	-	-	-	-	-	1
10	-	-	-	-	10	1
11	-	-	-	-	5	4
12	-	-	-	-	0	0
13	-	-	-	-	0	0
14	-	-	-	-	0	0
15	-	-	-	-	0	1
16	-	-	-	-	1	3
17	-	-	-	-	0	0
18	-	-	-	-	0	0
19	-	-	-	-	0	0
20	-	-	-	-	2	1
21	-	-	-	-	1	1
22	-	-	-	-	0	2
23	-	-	-	-	0	0
24	-	-	-	-	0	0
25	-	-	-	-	2	0
26	-	-	-	-	1	3
27	-	-	-	-	1	1
28	-	-	-	-	1	0
29	-	-	1	1	4	3
30	-	0	1	1	1	6
31	-	3	0	0	13	4
32	1	1	2	1	12	5
33	0	0	0	0	11	10
34	1	0	2	2	17	15
35	0	1	0	0	7	11
36	0	2	0	0	6	5
37	2	0	0	0	10	3
38	0	4	1	0	4	11
39	1	3	0	0	6	4
40	2	3	1	1	4	5
41	0	0	-	0	4	0
42	1	2	-	2	5	4
43	0	1	-	-	2	2
44	1	1	-	-	7	2
45	5	0	-	-	10	0
46	4	3	-	-	6	4
47	4	0	-	-	5	2
48	4	0	-	-	4	0
49	1	2	-	-	1	4
50	-	1	-	-	1	1
51	-	2	-	-	1	2
52	-	0	-	-	-	0
53	-	1	-	-	-	1
Total	27	27	10	8	165	122
Reproductive Development						
1	7	14	9	5	110	97
2	0	0	0	0	5	3
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	20	13	1	3	50	22
8	0	0	0	0	0	0

Table 38. Length frequency and reproductive development summaries of yellowtail rockfish, Sebastodes flavidus, collected with sunken gillnets on the F/V ISLAND SUN, June 3-11, 1991.

Area	032402		042501		Grand Total	
	Date	080691	Date	090691		
Depth (m)	50		61			
Set	03		06			
Length (cm)	M	F	M	F	M	F
32	-	-	1	-	1	-
33	-	-	1	1	1	1
34	-	2	1	2	1	4
35	-	0	1	0	1	0
36	1	0	2	3	3	3
37	1	0	3	2	4	2
38	0	1	0	1	0	2
39	0	0	1	0	1	0
40	0	0	0	1	0	1
41	3	0	0	1	3	1
42	0	1	1	0	1	1
43	0	1	-	1	-	2
44	1	1	-	0	1	1
45	-	-	-	0	-	0
46	-	-	-	0	-	0
47	-	-	-	0	-	0
48	-	-	-	0	-	0
49	-	-	-	0	-	0
50	-	-	-	0	-	0
51	-	-	-	0	-	0
52	-	-	-	1	-	1
Total	6	6	11	13	17	19
Reproductive Development						
1	2	2	11	11	13	13
2	0	0	0	1	0	1
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	4	4	0	1	4	5
8	0	0	0	0	0	0

Table 39. Length frequency and reproductive development summaries of rosethorn rockfish, Sebastes helvomaculatus, collected with bottom trawls on the R/V W.E. RICKER, May 13-26, 1991.

Area	032402		032402		Grand Total	
Date	200591		220591			
Depth (m)	83		63			
Set	15		21			
	M	F	M	F	M	F
Length (cm)						
10	1	-	-	-	1	-
11	0	-	-	-	0	-
12	1	-	-	-	1	-
13	0	-	-	-	0	-
14	1	-	-	-	1	-
15	0	-	-	-	0	-
16	0	-	-	-	0	-
17	0	-	-	-	0	-
18	0	1	-	-	0	1
19	0	2	-	-	0	2
20	1	1	-	-	1	1
21	1	1	-	-	1	1
22	0	4	-	-	0	4
23	0	4	-	-	0	4
24	0	3	-	-	1	0
25	2	1	1	-	3	1
26	1	2	-	-	1	2
27	0	3	-	-	0	3
28	1	0	-	-	1	0
29	-	0	-	-	-	0
30	-	0	-	-	-	0
31	-	0	-	-	-	0
32	-	1	-	-	-	1
Total	9	23	1	1	10	24
Reproductive Development						
1	4	5	1	0	5	5
2	4	4	0	0	4	4
3	0	0	0	0	0	0
4	0	2	0	0	0	2
5	0	7	0	0	0	7
6	0	2	0	0	0	2
7	1	3	0	1	1	4
8	0	0	0	0	0	0

Table 40. Length frequency and reproductive development summaries of rosethorn rockfish, Sebastes helvomaculatus, collected with sunken gillnets on the F/V ISLAND SUN, June 3-11, 1991.

Area	042501		042501		Grand Total	
Date	090691		090691			
Depth (m)	61		66			
Set	06		07			
	M	F	M	F	M	F
Length (cm)						
23	1	-	-	1	1	1
24	1	-	-	-	1	0
25	-	-	-	-	0	0
26	-	-	-	-	0	0
27	-	-	1	-	1	0
28	-	-	-	-	-	0
29	-	-	-	-	-	0
30	-	1	-	-	-	1
Total	2	1	1	1	3	2
Reproductive Development						
1	1	0	0	0	1	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	1	0	1
6	0	0	0	0	0	0
7	1	1	1	0	2	1
8	0	0	0	0	0	0

Table 41. Length frequency and reproductive development summaries of quillback rockfish, Sebastodes maliger, collected with bottom trawls on the R/V W.E. RICKER, May 13-26, 1991.

Table 41. (Cont'd.)

Area	032402		032402		032404		032402		Grand Total	
	Date	200591	Date	210591	Date	210591	Date	210591	M	F
Depth (m)	24	29	20	20	24	24	20	20		
Set	16	17	18							
Length (cm)	M	F	M	F	M	F	M	F	M	F
24	1	-	-	-	-	-	-	-	1	-
25	0	-	-	-	-	-	-	-	0	1
26	0	-	-	-	-	-	-	-	0	0
27	0	-	-	-	-	-	-	-	1	0
28	0	-	-	-	-	-	-	-	0	0
29	1	2	-	-	-	-	-	-	1	2
30	1	0	-	-	-	-	2	1	3	1
31	1	0	-	-	-	-	1	0	3	0
32	0	1	-	-	-	-	0	0	0	2
33	0	0	-	-	-	-	0	0	0	0
34	1	0	-	-	-	-	0	0	1	0
35	0	0	-	-	1	-	0	1	1	1
36	0	0	-	-	-	-	0	0	0	0
37	1	1	-	-	-	-	0	0	1	1
38	0	1	1	-	-	-	0	0	1	1
39	0	1	0	-	-	-	1	3	1	4
40	0	2	2	-	-	-	0	3	2	7
41	0	3	1	1	-	-	3	0	4	4
42	0	0	-	1	-	-	1	1	1	3
43	2	1	-	-	-	-	4	1	6	3
44	1	-	-	-	-	-	1	1	2	3
45	-	-	-	-	-	-	-	-	-	0
46	-	-	-	-	-	-	-	-	-	0
47	-	-	-	-	-	-	-	-	-	1
Total	9	12	4	2	1	0	13	11	29	34
Reproductive Development										
1	2	0	0	0	0	0	3	3	7	4
2	0	2	0	0	0	0	0	0	0	2
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	1	0	0	0	0	0	0	0	1
6	0	0	0	0	0	0	0	5	0	6
7	7	9	4	2	1	0	10	3	22	16
8	0	0	0	0	0	0	0	0	0	0

Table 42. Length frequency and reproductive development summaries of quillback rockfish, Sebastodes maliger, collected with sunken gillnets on the R/V W.E. RICKER, May 13-26, 1991.

Area	032403		032403		Grand Total	
	Date	180591	Date	200591	M	F
Depth (m)	5	3				
Set	04	07				
Length (cm)	M	F	M	F	M	F
12	-	-	1	-	1	-
13	-	-	-	-	0	-
14	-	-	-	-	0	-
15	-	-	-	-	0	-
16	-	-	-	-	0	-
17	-	-	-	-	0	-
18	1	-	-	1	1	1
19	1	-	-	-	1	-
Total	2	0	1	1	3	1
Reproductive Development						
1	2	0	1	1	3	1
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0

Table 43. Length frequency and reproductive development summaries of quillback rockfish, *Sebastodes maliger*, collected with bottom and midwater trawls on the F/V ISLAND SUN, June 3-11, 1991.

Table 44. Length frequency and reproductive development summaries of quillback rockfish, Sebastodes maliger, collected with sunken gillnets on the F/V ISLAND SUN, June 3-11, 1991.

Table 45. Length frequency and reproductive development summaries of black rockfish, Sebastodes melanops, collected with sunken gillnets on the R/V W.E. RICKER, May 13-26, 1991.

Area	032403		Grand Total	
Date	190591		5	
Depth (m)			06	
	M	F	M	F
Length (cm)				
24	1	-	1	-
25	0	-	0	-
26	0	2	0	2
27	1	1	1	1
28	3	2	3	2
29	2	0	2	0
30	3	2	3	2
31	-	0	-	0
32	-	0	-	0
33	-	0	-	0
34	-	0	-	0
35	-	0	-	0
36	-	1	-	1
37	-	0	-	0
38	-	1	-	1
Total	10	9	10	9
Reproductive Development				
1	10	3	10	3
2	0	6	0	6
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0

Table 46. Length frequency and reproductive development summaries of black rockfish, Sebastodes melanops, collected with bottom and midwater trawls on the F/V ISLAND SUN, June 3-11, 1991.

Area	032402		032402		Grand Total	
Date	050691		050691			
Depth (m)	17		16			
Set	02		04		M	F
Length (cm)	M	F	M	F	M	F
37	-	1	-	1	-	2
38	-	-	-	0	-	0
39	-	-	-	0	-	0
40	1	-	-	1	1	1
41	-	-	2	-	2	-
42	-	-	0	-	0	-
43	-	-	0	-	0	-
44	-	-	1	-	1	-
45	-	-	0	-	0	-
46	-	-	0	-	0	-
47	-	-	1	-	1	-
Total	1	1	4	2	5	3
Reproductive Development						
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	1	1	4	2	5	3
8	0	0	0	0	0	0

Table 47. Length frequency and reproductive development summaries of black rockfish, Sebastodes melanops, collected with sunken gillnets on the F/V ISLAND SUN, June 3-11, 1991.

Area	032402		Grand Total	
Date	080691			
Depth (m)	6			
Set	04			
Length (cm)	M	F	M	F
33	-	1	-	1
34	-	0	-	0
35	-	0	-	0
36	-	0	-	0
37	-	1	-	1
38	-	0	-	0
39	-	0	-	0
40	-	1	-	1
41	1	0	1	0
42	0	0	0	0
43	0	0	0	0
44	2	1	2	1
45	0	0	0	0
46	1	0	1	0
47	0	1	0	1
48	1	-	1	-
Total	5	5	5	5
Reproductive Development				
1	0	0	0	0
2	0	5	0	5
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	5	0	5	0
8	0	0	0	0

Table 48. Length frequency and reproductive development summaries of vermillion rockfish, Sebastodes miniatus, collected with sunken gillnets on the R/V W.E. RICKER, May 13-26, 1991.

Area	032403		Grand Total	
Date	200591			
Depth (m)	3			
Set	07			
Length (cm)	M	F	M	F
27	1	-	1	-
Total	1	0	1	0
Reproductive Development				
1	1	0	1	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0

Table 49. Length frequency and reproductive development summaries of vermilion rockfish, Sebastodes miniatus, collected with bottom and midwater trawls on the F/V ISLAND SUN, June 3-11, 1991.

Table 49. (Cont'd.)

Area	032403		Grand Total	
Date	050691			
Depth (m)	8			
Set	M	F	M	F
Length (cm)				
23	-	-	-	1
24	-	-	-	1
25	-	-	1	0
26	-	-	0	0
27	-	-	0	0
28	-	-	0	0
29	-	-	0	0
30	-	-	2	0
31	-	-	0	1
32	-	-	0	1
33	-	-	0	0
34	-	-	2	2
35	-	-	0	0
36	-	-	2	2
37	-	-	0	0
38	-	-	0	0
39	-	-	2	0
40	-	-	0	0
41	-	-	0	0
42	-	-	0	1
43	-	-	0	1
44	-	-	0	0
45	-	-	0	0
46	-	-	0	0
47	-	-	2	0
48	-	-	0	0
49	1	-	1	2
50	0	-	0	-
51	0	-	0	-
52	0	-	0	-
53	1	-	1	-
54	-	-	0	-
55	-	-	2	-
Total	2	0	15	12
Reproductive Development				
1	0	0	2	2
2	0	0	2	7
3	0	0	0	3
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	2	0	11	0
8	0	0	0	0

Table 50. Length frequency and reproductive development summaries of blue rockfish, Sebastodes mystinus, collected with bottom and midwater trawls on the F/V ISLAND SUN, June 3-11, 1991.

Area	032402	Grand	
Date	050691	Total	
Depth (m)	17		
Set	02		
	M	F	M
Length (cm)			
15	2	-	2
16	0	-	0
17	0	-	0
18	0	-	0
19	0	-	0
20	0	-	0
21	0	-	0
22	0	-	0
23	1	-	1
24	0	-	0
25	0	-	0
26	7	-	7
Total	10	0	10
Reproductive Development			
1	3	0	3
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
7	7	0	7
8	0	0	0

Table 51. Length frequency and reproductive development summaries of bocaccio, Sebastodes paucispinis, collected with bottom trawls on the R/V W.E. RICKER, May 13-26, 1991.

Table 52. Length frequency and reproductive development summaries of bocaccio, *Sebastodes paucispinis*, collected with sunken gillnets on the R/V W.E. RICKER, May 13-26, 1991.

Table 53. Length frequency and reproductive development summaries of bocaccio, *Sebastodes paucispinis*, collected with bottom and midwater trawls on the F/V ISLAND SUN, June 3-11, 1991.

Area	032402		032402		Grand Total		
	Date	080691	Date	080691	Set	014	015
Depth (m)	62	69	Length (cm)	M	F	M	F
30	1	-	-	-	1	-	-
31	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-
33	-	-	-	-	-	-	-
34	-	-	-	-	-	-	-
35	-	-	-	-	-	-	-
36	-	-	-	-	-	-	-
37	-	-	-	-	-	-	-
38	-	-	-	-	-	-	-
39	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-
41	-	-	-	-	-	-	-
42	-	-	-	-	-	-	-
43	-	-	-	-	-	-	-
44	-	-	-	-	-	-	-
45	-	-	-	-	-	-	-
46	-	-	-	-	-	-	-
47	-	-	-	-	-	-	-
48	-	-	-	-	-	-	-
49	-	-	-	-	-	-	-
50	-	-	-	-	-	-	-
51	-	-	-	-	-	-	-
52	-	-	-	-	-	-	-
53	-	-	-	-	-	-	-
54	-	-	-	-	-	-	-
55	-	-	-	-	-	-	-
56	-	-	-	-	-	-	-
57	-	-	-	-	-	-	-
58	-	-	-	-	-	-	-
59	-	-	-	-	-	-	-
60	-	-	-	-	-	-	-
61	-	-	-	-	-	-	-
62	-	-	-	-	-	-	-
63	-	-	-	-	-	-	-
64	-	-	-	-	-	-	-
65	-	-	-	-	-	-	-
66	-	-	-	-	-	-	-
67	-	-	-	-	-	-	-
68	-	-	-	-	-	-	-
69	-	-	-	-	-	-	-
70	-	-	-	-	-	-	-
71	-	-	-	-	-	-	-
72	-	-	-	-	-	-	-
73	-	-	-	-	-	-	-
74	-	-	-	1	-	1	-
Total	1	0	0	1	1	1	
Reproductive Development							
1	0	0	0	0	0	0	
2	1	0	0	0	1	0	
3	0	0	0	0	0	0	
4	0	0	0	0	0	0	
5	0	0	0	0	0	0	
6	0	0	0	0	0	0	
7	0	0	0	1	0	1	
8	0	0	0	0	0	0	

Table 54. Length frequency and reproductive development summaries of bocaccio, *Sebastodes paucispinis*, collected with sunken gillnets on the F/V ISLAND SUN, June 3-11, 1991.

Table 55. Length frequency and reproductive development summaries of canary rockfish, Sebastodes pinniger, collected with bottom trawls on the R/V W.E. RICKER, May 13-26, 1991.

Table 55. (Cont'd.)

Table 55. (Cont'd.)

Table 56. Length frequency and reproductive development summaries of canary rockfish, Sebastodes pinniger, collected with sunken gillnets on the R/V W.E. RICKER, May 13-26, 1991.

Area Date Depth (m) Set	032403		032403		Grand Total	
	5 06	3 07	M	F	M	F
Length (cm)						
24	1	-	-	-	1	-
25	0	-	1	-	1	-
26	0	-	-	-	0	-
27	0	-	-	-	0	-
28	1	-	-	-	1	-
Total	2	0	1	0	3	0
Reproductive Development						
1	2	0	1	0	3	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0

Table 57. Length frequency and reproductive development summaries of canary rockfish, Sebastodes pinniger, collected with bottom and midwater trawls on the F/V ISLAND SUN, June 3-11, 1991.

Table 57. (Cont'd.)

Area	032402		032402		Grand Total	
	Date	080691	Date	080691	Set	14
Depth (m)	62	69			M	F
Length (cm)	M	F	M	F	M	F
9	-	-	-	-	1	-
10	-	-	-	-	0	-
11	-	-	-	-	0	-
12	-	-	-	-	0	-
13	-	-	-	-	0	-
14	-	-	-	-	1	1
15	-	-	-	-	0	0
16	-	-	-	-	1	1
17	-	-	-	-	0	1
18	-	-	-	-	0	0
19	-	-	-	-	0	0
20	-	-	-	-	2	4
21	-	-	-	-	3	4
22	-	-	-	-	2	1
23	-	-	-	-	1	0
24	-	-	-	-	0	0
25	-	-	-	-	0	1
26	-	-	-	-	0	0
27	-	-	-	-	0	0
28	-	-	-	-	0	0
29	-	-	-	-	1	2
30	-	-	-	-	2	2
31	-	-	-	-	0	1
32	-	-	-	-	2	1
33	-	-	-	-	1	1
34	-	-	-	-	0	1
35	-	-	-	-	0	0
36	-	-	-	-	1	0
37	-	-	-	-	0	0
38	-	-	-	-	0	0
39	-	-	-	-	1	3
40	-	-	-	-	0	0
41	-	-	-	-	0	0
42	-	-	-	-	1	0
43	-	-	1	-	1	1
44	-	-	1	-	1	0
45	-	-	1	1	1	1
46	-	-	0	0	0	0
47	-	-	0	0	0	0
48	-	1	0	0	1	1
49	-	-	1	1	2	1
50	-	-	1	-	1	1
51	-	-	-	-	0	-
52	-	-	-	-	0	-
53	1	-	-	-	1	-
Total	1	1	5	2	28	29
Reproductive Development						
1	0	0	0	0	18	23
2	0	1	0	1	2	5
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	1	0	5	1	8	1
8	0	0	0	0	0	0

Table 58. Length frequency and reproductive development summaries of canary rockfish, Sebastodes pinniger, collected with sunken gillnets on the F/V ISLAND SUN, June 3-11, 1991.

Table 59. Length frequency and reproductive development summaries of redstripe rockfish, Sebastodes proriger, collected with bottom trawls on the R/V W.E. RICKER, May 13-26, 1991.

Table 60. Length frequency and reproductive development summaries of redstripe rockfish, Sebastodes proriger, collected with sunken gillnets on the R/V W.E. RICKER, May 13-26, 1991.

Area	032403		Grand
Date	180591		Total
Depth (m)	5		
Set	04		
	M F	M F	
Length (cm)			
16	1 -	1 -	
Total	1 0	1 0	
<b>Reproductive Development</b>			
1	1 0	1	0
2	0 0	0	0
3	0 0	0	0
4	0 0	0	0
5	0 0	0	0
6	0 0	0	0
7	0 0	0	0
8	0 0	0	0

Table 61. Length frequency and reproductive development summaries of redstripe rockfish, Sebastodes proriger, collected with bottom and midwater trawls on the F/V ISLAND SUN, June 3-11, 1991.

Table 62. Length frequency and reproductive development summaries of redstripe rockfish, Sebastodes proriger, collected with sunken gillnets on the F/V ISLAND SUN, June 3-11, 1991.

Area	032402	Grand	
Date	080691	Total	
Depth (m)	50		
Set	03		
	M	F	M
Length (cm)			
29	-	1	-
Total	0	1	0
Reproductive Development			
1	0	1	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
7	0	0	0
8	0	0	0

Table 63. Length frequency and reproductive development summaries of yellowmouth rockfish, Sebastodes reedi, collected with bottom trawls on the R/V W.E. RICKER, May 13-26, 1991.

Area	032402	Grand	
Date	200591	Total	
Depth (m)	83		
Set	15		
	M	F	M
Length (cm)			
22	-	1	-
23	-	-	-
24	-	-	-
25	-	-	-
26	-	-	-
27	-	-	-
28	-	-	-
29	-	-	-
30	-	-	-
31	-	-	-
32	-	-	-
33	-	-	-
34	1	-	1
Total	1	1	1
Reproductive Development			
1	1	1	1
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
7	0	0	0
8	0	0	0

Table 64. Length frequency and reproductive development summaries of yelloweye rockfish, Sebastodes ruberrimus, collected with bottom trawls on the R/V W.E. RICKER, May 13-26, 1991.

Area	032402		032402		032402		032402		032402		032402		Grand Total	
Date	180591		200591		200591		210591		210591		220591			
Depth (m)	50		83		24		29		24		63			
Set	11		15		16		17		20		21			
Length (cm)	M	F	M	F	M	F	M	F	M	F	M	F	M	F
38	-	-	-	-	-	-	-	-	-	-	1	-	1	-
39	-	-	-	-	-	-	-	-	-	-	0	-	0	-
40	-	-	-	-	-	-	-	-	-	-	0	-	0	-
41	-	-	-	-	-	-	-	-	-	-	0	-	0	-
42	-	-	-	-	-	-	-	-	-	-	0	-	0	-
43	-	-	-	-	-	-	-	-	-	-	0	-	0	-
44	-	-	-	-	-	-	-	-	-	-	0	-	0	-
45	-	-	1	-	-	-	-	-	-	-	0	-	1	-
46	-	-	0	-	-	-	-	-	-	-	0	-	0	-
47	-	-	0	-	-	-	-	-	-	-	0	-	0	-
48	-	-	0	-	-	-	-	-	-	-	0	1	0	1
49	-	-	0	-	-	-	-	-	-	-	0	0	0	0
50	-	-	0	-	-	-	-	-	-	-	0	0	0	0
51	-	-	0	-	-	-	-	-	-	-	0	1	0	1
52	-	-	0	-	-	-	-	-	-	-	0	0	0	0
53	-	-	0	-	-	-	-	-	-	-	0	0	0	0
54	-	-	2	-	-	-	-	-	-	-	0	0	2	0
55	-	-	1	-	-	-	-	-	-	-	0	0	1	0
56	-	-	0	-	1	-	-	-	-	-	0	0	0	1
57	-	-	0	-	-	-	-	-	-	-	0	0	0	0
58	-	-	1	-	-	-	-	-	-	-	0	0	1	0
59	-	-	0	-	-	-	-	-	-	-	0	0	0	1
60	-	-	0	-	-	-	-	-	1	-	0	0	1	0
61	-	-	0	-	-	-	-	-	-	-	0	1	0	1
62	-	-	0	-	-	-	-	-	-	-	0	-	0	0
63	-	-	0	-	-	-	-	-	-	-	0	-	0	0
64	-	-	0	-	-	-	-	-	-	-	0	-	0	0
65	-	-	1	-	-	-	-	-	-	-	1	-	2	0
66	-	-	0	-	-	-	-	-	-	-	-	-	0	0
67	-	-	1	-	-	-	-	-	-	-	-	-	1	0
68	-	-	-	-	-	-	-	-	-	-	-	-	0	0
69	1	-	-	-	-	-	-	-	-	-	-	-	1	0
70	-	-	-	-	-	-	-	-	-	-	-	-	-	0
71	-	-	-	-	-	-	-	-	-	-	-	-	-	0
72	-	-	-	-	-	-	-	-	-	-	-	-	-	0
73	-	2	-	-	-	-	-	-	-	-	-	-	-	2
Total	1	2	7	0	0	1	0	1	1	0	2	3	11	7
Reproductive Development														
1	0	0	0	0	0	0	0	0	0	0	1	0	1	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	1	0	0	0	0	0	1
5	0	0	0	0	0	0	1	0	0	0	0	1	0	2
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	1	2	7	0	0	0	0	0	1	0	1	2	10	4

Table 65. Length frequency and reproductive development summaries of yelloweye rockfish, Sebastodes ruberrimus, collected with bottom and midwater trawls on the F/V ISLAND SUN, June 3-11, 1991.

Area	032402		Grand	
	Date	060691	Total	
Depth (m)	62			
Set	09			
	M	F	M	F
Length (cm)				
64	1	-	1	-
Total	1	0	1	0
Reproductive Development				
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	1	0	1	0
8	0	0	0	0

Table 66. Length frequency and reproductive development summaries of yelloweye rockfish, Sebastodes ruberrimus, collected with sunken gillnets on the F/V ISLAND SUN, June 3-11, 1991.

Area	042501		032402		Grand	
	Date	090691	100691		Total	
Depth (m)	61		24			
Set	06		09			
	M	F	M	F	M	F
Length (cm)						
26	-	-	-	1	-	1
27	-	-	-	-	-	0
28	-	-	-	-	-	0
29	-	-	-	-	-	0
30	-	-	-	-	-	0
31	-	-	-	-	-	0
32	-	1	-	-	-	1
33	-	-	-	-	-	-
34	-	-	-	-	-	-
35	-	-	-	-	-	-
36	-	-	-	-	-	-
37	-	-	-	-	-	-
38	-	-	-	-	-	-
39	-	-	-	-	-	-
40	-	-	-	-	-	-
41	-	-	-	-	-	-
42	-	-	-	-	-	-
43	-	-	-	-	-	-
44	-	-	-	-	-	-
45	-	-	-	-	-	-
46	1	-	-	-	1	-
Total	1	1	0	1	1	2
Reproductive Development						
1	0	1	0	1	0	2
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	1	0	0	0	1	0
8	0	0	0	0	0	0

Table 67. Length frequency and reproductive development summaries of harlequin rockfish, Sebastes variegatus, collected with bottom trawls on the R/V W.E. RICKER, May 13-26, 1991.

Area	032402		Grand Total	
Date	160591			
Depth (m)	49			
Set	09			
	M	F	M	F
Length (cm)				
27	0	1	0	1
28	0	1	0	1
29	0	1	0	1
Total	0	3	0	3
Reproductive Development				
1	0	0	0	0
2	0	0	0	0
3	0	3	0	3
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0

Table 68. Length frequency and reproductive development summaries of harlequin rockfish, Sebastes variegatus, collected with sunken gillnets on the R/V W.E. RICKER, May 13-26, 1991.

Area	032403		Grand Total	
Date	180591			
Depth (m)	6			
Set	05			
	M	F	M	F
Length (cm)				
14	0	1	0	1
Total	0	1	0	1
Reproductive Development				
1	0	1	0	1
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0

Table 69. Length frequency and reproductive development summaries of pygmy rockfish, Sebastes wilsoni, collected with bottom trawls on the R/V W.E. RICKER, May 13-26, 1991.

Area	032402		032402		032402		032402		032402		Grand Total	
Date	190591		190591		200591		200591		220591			
Depth (m)	65		71		83		83		63			
Set	12		13		15		15		21			
	M	F	M	F	M	F	M	F	M	F	M	F
Length (cm)												
12	-	-	-	-	1	1	-	1	-	-	1	2
13	-	-	-	-	1	2	4	5	-	-	5	7
14	-	-	-	-	2	5	3	5	-	-	5	10
15	-	-	-	-	9	2	10	3	-	-	19	5
16	-	-	-	-	16	3	32	16	-	-	48	19
17	-	1	-	-	11	5	28	13	-	-	39	19
18	3	1	-	-	4	9	8	35	-	1	15	46
19	-	2	-	1	-	10	1	20	-	1	1	34
20	-	3	-	-	-	4	-	19	-	-	-	26
21	-	1	-	-	-	10	-	25	-	-	-	36
22	-	1	-	-	-	2	-	12	-	-	-	15
23	-	-	-	-	-	3	-	2	-	-	-	5
Total	3	9	0	1	44	56	86	156	0	2	133	224
Reproductive Development												
1	0	0	0	0	2	6	6	5	0	0	8	11
2	0	1	0	0	1	0	1	1	0	2	2	4
3	0	0	0	0	0	0	0	1	0	0	0	1
4	0	1	0	0	0	24	0	90	0	0	0	115
5	0	6	0	0	0	12	1	25	0	0	1	43
6	0	1	0	0	0	12	0	31	0	0	0	44
7	3	0	0	1	41	1	78	3	0	0	122	5
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	1	0	0	0	0	0	1

Table 70. Length frequency and reproductive development summaries of pygmy rockfish, Sebastes wilsoni, collected with bottom and midwater trawls on the F/V ISLAND SUN, June 3-11, 1991.

Area	032402		Grand Total	
Date	080691			
Depth (m)	62			
Set	14			
	M	F	M	F
Length (cm)				
12	1	-	1	-
13	1	-	1	-
14	-	1	-	1
Total	2	1	2	1
Reproductive Development				
1	0	0	0	0
2	2	0	2	0
3	0	0	0	0
4	0	0	0	0
5	0	1	0	1
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0

Table 71. Length frequency and reproductive development summaries of sharpchin rockfish, Sebastodes zacentrus, collected with bottom trawls on the R/V W.E. RICKER, May 13-26, 1991.

Area	032402		032402		032402		Grand Total	
	Date	190591	Date	200591	Date	220591		
Depth (m)	65		83		63			
Set	12		15		21			
	M	F	M	F	M	F	M	F
Length (cm)								
13	-	-	-	-	3	3	3	3
14	-	-	-	1	14	16	14	17
15	3	1	-	1	19	16	22	18
16	0	-	2	1	7	10	9	11
17	1	-	0	1	2	3	3	4
18	0	-	0	0	1	0	1	0
19	1	-	0	2	3	0	4	2
20	-	-	4	4	3	2	7	6
21	-	-	2	5	2	3	4	8
22	-	-	3	1	0	3	3	4
23	-	-	4	3	1	2	5	5
24	-	-	2	11	0	-	2	11
25	-	-	-	7	1	-	1	7
26	-	-	-	2	-	-	-	2
27	-	-	-	1	-	-	-	1
28	-	-	-	0	-	-	-	0
29	-	-	-	2	-	-	-	2
30	-	-	-	1	-	-	-	1
Total	5	1	17	43	56	58	78	102
Reproductive Development								
1	5	1	16	18	55	57	76	76
2	0	0	0	0	1	1	1	1
3	0	0	0	1	0	0	0	1
4	0	0	0	8	0	0	0	8
5	0	0	0	16	0	0	0	16
6	0	0	0	0	0	0	0	0
7	0	0	1	0	0	0	1	0
8	0	0	0	0	0	0	0	0

Table 72. Length frequency and reproductive development summaries of sharpchin rockfish, Sebastodes zacentrus, collected with bottom and midwater trawls on the F/V ISLAND SUN, June 3-11, 1991.

Area	032402		032402		Grand Total	
	Date	060691	Date	080691		
Depth (m)	62		62			
Set	09		14			
	M	F	M	F	M	F
Length (cm)						
15	-	-	1	1	1	1
16	-	1	-	-	-	1
Total	0	1	1	1	1	2
Reproductive Development						
1	0	1	1	1	1	2
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0

Table 73. Length frequency summaries of spiny dogfish, Squalus acanthias, collected with bottom trawls on the R/V W.E. RICKER, May 13-26, 1991.

Area	032404	032404	032402	032402	032402	032402
Date	140591	140591	140591	140591	150591	150591
Depth (m)	28	27	26	23	40	37
Set	01	02	03	04	05	06
	M	F	M	F	M	F
Length (cm)						
54	-	-	-	-	-	-
55	-	-	-	-	-	-
56	-	-	-	-	-	-
57	-	-	-	-	-	-
58	-	-	-	-	-	-
59	-	-	-	-	-	-
60	-	-	-	-	-	-
61	-	-	-	-	-	-
62	-	-	-	-	-	-
63	-	-	-	-	-	-
64	-	-	-	-	-	-
65	-	-	-	-	-	-
66	-	-	-	-	-	-
67	-	-	-	-	-	-
68	-	-	-	-	-	-
69	-	-	-	-	-	-
70	-	-	-	-	-	-
71	-	-	-	-	-	-
72	-	-	-	-	-	-
73	-	-	-	-	-	-
74	-	-	-	-	-	-
75	-	-	-	-	-	-
76	-	-	-	-	-	-
77	-	-	-	-	-	1
78	-	-	-	-	-	1
79	-	-	-	-	-	0
80	-	-	-	-	-	2
81	-	-	-	-	-	0
82	-	-	-	-	-	1
83	-	-	-	-	-	1
84	-	-	-	-	-	1
85	-	1	-	-	-	-
86	-	0	-	-	-	3
87	-	0	-	-	-	2
88	-	0	-	-	-	1
89	-	2	-	-	-	0
90	-	3	-	-	1	-
91	-	3	-	-	0	-
92	-	3	-	-	0	-
93	-	0	1	-	1	-
94	-	2	1	-	0	-
95	-	4	1	-	0	-
96	-	1	2	-	0	-
97	-	3	1	-	0	-
98	-	7	0	-	1	-
99	-	2	1	-	0	-
100	-	1	2	1	0	-
101	-	1	0	1	0	1
102	-	5	3	1	0	0
103	-	0	2	0	0	1
104	-	2	2	0	0	1
105	-	1	1	1	1	-
106	-	4	0	0	0	-
107	-	0	1	0	0	-
108	-	0	0	1	1	-
109	-	1	0	-	-	-
110	-	2	1	-	-	-
111	-	0	1	-	-	-
112	-	1	-	-	-	-
113	-	0	-	-	-	-
114	-	0	-	-	-	-
115	-	1	-	-	-	-
Total	0	50	0	20	1	7
					0	3
					0	20
					0	6

Table 73. (Cont'd)

Area Date	032404 150591		032404 150591		032402 160591		032402 160591		032402 180591		032402 190591		032402 190591	
Depth (m) Set	M	F	M	F	M	F	M	F	M	F	M	F	M	F
<b>Length (cm)</b>														
54	-	-	-	-	-	-	-	-	-	-	-	-	-	-
55	-	-	-	-	-	1	-	-	-	-	-	-	-	-
56	-	-	-	-	-	0	-	-	-	-	-	-	-	-
57	-	-	-	-	-	0	-	-	-	-	-	-	-	-
58	-	-	-	-	-	0	-	1	-	-	-	-	-	-
59	-	-	-	-	-	0	-	0	-	-	-	-	-	-
60	-	-	-	-	1	0	-	0	1	-	-	-	-	-
61	-	-	-	-	0	1	-	0	0	1	-	-	-	-
62	-	-	-	-	0	0	-	1	1	0	-	-	-	-
63	-	-	-	-	0	2	-	0	0	0	-	-	-	-
64	-	-	-	-	2	0	1	0	0	0	-	-	-	-
65	-	-	-	-	0	2	3	1	0	0	-	-	-	-
66	-	-	-	-	2	0	0	3	0	1	-	1	-	-
67	-	-	-	-	0	0	0	0	0	0	1	-	-	-
68	-	-	-	-	0	0	1	0	0	1	0	-	-	-
69	-	-	-	-	0	0	0	0	0	0	0	-	-	-
70	-	-	-	-	0	0	0	0	0	0	0	0	-	-
71	-	-	-	-	1	0	1	1	1	1	0	-	-	-
72	-	1	-	-	0	0	1	0	0	0	0	-	-	-
73	0	-	-	-	0	0	1	0	0	1	0	-	-	-
74	0	-	-	-	1	1	0	0	0	2	0	-	-	-
75	0	-	-	-	0	0	0	0	0	1	0	-	-	-
76	0	-	-	-	1	0	0	0	0	2	1	-	-	-
77	0	-	-	-	0	0	0	0	0	0	0	-	-	-
78	0	-	-	-	0	0	0	0	0	1	0	-	1	-
79	0	-	-	-	0	0	0	0	0	0	0	-	-	-
80	0	-	-	-	0	0	0	0	0	0	1	-	-	-
81	0	-	-	-	0	0	1	0	0	0	0	-	-	-
82	0	-	-	-	0	0	0	0	0	0	0	-	-	-
83	0	-	-	-	0	0	0	0	0	0	0	-	-	-
84	0	-	-	-	1	0	0	0	0	0	1	-	-	-
85	0	-	-	-	0	0	0	0	0	2	-	-	-	-
86	0	-	-	-	0	0	2	0	0	0	-	-	-	-
87	0	-	-	-	0	0	0	0	0	1	-	-	-	-
88	1	0	-	-	1	0	0	0	0	1	-	-	-	-
89	0	-	-	-	0	0	1	0	1	1	-	-	-	-
90	0	-	-	-	2	-	0	0	1	1	-	-	-	-
91	1	-	1	-	1	0	-	-	-	-	-	-	-	-
92	0	-	0	-	0	0	-	-	-	-	-	-	-	-
93	0	-	0	-	0	0	-	-	-	-	-	-	-	-
94	0	-	0	-	0	0	-	-	-	-	-	-	-	-
95	0	-	0	-	0	1	-	-	-	-	-	-	-	-
96	0	-	1	-	1	-	-	-	-	-	-	-	-	-
97	1	-	1	-	1	-	-	-	-	-	-	-	-	-
98	0	-	2	-	2	-	-	-	-	-	-	-	-	-
99	3	-	0	-	0	-	-	-	-	-	-	-	-	-
100	1	-	2	-	2	-	-	-	-	-	-	-	-	-
101	4	-	1	-	1	-	-	-	-	-	-	-	-	-
102	2	-	1	-	1	-	-	-	-	-	-	-	-	-
103	1	-	2	-	2	-	-	-	-	-	-	-	-	-
104	2	-	1	-	1	-	-	-	-	-	-	-	-	-
105	1	-	0	-	0	-	-	-	-	-	-	-	-	-
106	0	-	2	-	2	-	-	-	-	-	-	-	-	-
107	1	-	2	-	2	-	-	-	-	-	-	-	-	-
108	0	-	0	-	0	-	-	-	-	-	-	-	-	-
109	1	-	1	-	1	-	-	-	-	-	-	-	-	-
110	-	-	0	-	0	-	-	-	-	-	-	-	-	-
111	-	-	0	-	0	-	-	-	-	-	-	-	-	-
112	-	-	1	-	1	-	-	-	-	-	-	-	-	-
113	-	-	-	-	-	-	-	-	-	-	-	-	-	-
114	-	-	-	-	-	-	-	-	-	-	-	-	-	-
115	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1	19	0	20	10	8	12	8	10	10	3	1	1	0

Table 73. (Cont'd)

Area	032402		032402		032402		032402		032404		032404		032402	
Date	190591		200591		200591		210591		210591		210591		210591	
Depth (m)	75		83		24		29		20		21		24	
Set	14		15		16		17		18		19		20	
Length (cm)	M	F	M	F	M	F	M	F	M	F	M	F	M	F
54	-	-	-	-	-	-	-	-	-	-	-	-	-	-
55	-	-	-	-	-	-	-	-	-	-	-	-	-	-
56	-	-	-	-	-	-	-	-	-	-	-	-	-	-
57	-	-	-	-	-	-	-	-	-	-	-	-	-	-
58	-	-	-	-	-	-	-	-	-	-	-	-	-	-
59	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60	-	-	-	-	-	-	-	-	-	-	-	-	-	-
61	-	-	-	2	-	-	-	-	-	-	-	-	-	-
62	-	-	-	-	-	-	-	-	-	-	-	-	-	-
63	-	-	-	-	-	-	-	-	-	-	-	-	-	-
64	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65	-	-	-	-	-	-	-	-	-	-	-	-	-	-
66	-	-	-	-	-	-	-	-	-	-	-	-	-	-
67	-	-	-	-	-	-	-	-	-	-	-	-	-	-
68	-	-	-	-	-	-	-	-	-	-	-	-	-	-
69	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70	-	-	-	-	-	-	-	-	-	-	-	-	-	-
71	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72	-	-	-	-	-	-	-	-	-	-	-	-	-	-
73	-	-	-	-	-	-	-	-	-	-	-	-	-	-
74	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75	-	-	-	-	-	-	-	-	-	-	-	-	-	-
76	-	-	-	-	-	-	-	-	-	-	-	-	-	-
77	-	-	-	-	-	-	-	-	-	-	-	-	-	-
78	-	-	-	-	-	-	-	-	-	-	-	-	-	-
79	-	-	-	-	-	-	-	-	-	-	-	-	-	-
80	-	-	-	-	-	-	-	-	-	-	-	-	-	-
81	-	-	-	-	-	1	-	-	-	-	-	-	-	-
82	-	-	-	-	0	-	-	-	-	-	-	-	-	-
83	-	-	-	-	0	-	-	-	-	-	-	-	-	-
84	-	-	-	-	1	-	-	-	-	-	-	-	-	-
85	-	-	-	-	0	-	-	-	-	1	-	-	-	-
86	-	-	-	-	0	-	-	-	-	0	-	-	-	-
87	-	-	-	-	0	-	-	1	-	0	-	-	-	-
88	-	-	-	-	1	-	-	0	-	0	-	-	-	-
89	1	-	-	-	0	-	-	1	-	0	-	-	-	-
90	-	-	-	-	0	-	-	2	-	1	-	-	-	-
91	-	-	-	-	2	-	-	1	-	0	-	-	-	-
92	-	-	-	-	1	-	-	2	-	1	-	-	-	-
93	-	-	-	-	1	-	-	2	-	0	-	-	1	-
94	-	-	-	-	0	-	-	0	-	1	-	0	-	-
95	-	-	-	-	0	-	-	1	-	0	-	0	-	1
96	-	-	-	-	2	-	-	0	-	2	-	1	-	1
97	-	-	-	-	2	-	-	0	-	1	-	1	-	0
98	-	-	-	-	1	-	-	1	-	1	-	2	-	1
99	-	-	-	-	0	-	-	0	-	0	-	0	-	0
100	-	-	-	-	1	-	-	2	-	1	-	0	-	1
101	-	-	-	-	0	-	-	0	-	2	-	0	-	0
102	-	-	-	-	3	-	-	0	-	0	-	1	-	1
103	-	-	-	-	0	-	-	1	-	0	-	0	-	0
104	-	-	-	-	0	-	-	0	-	1	-	0	-	2
105	-	-	-	-	1	-	-	2	-	1	-	1	-	0
106	-	-	-	-	0	-	-	0	-	0	-	1	-	1
107	-	-	-	-	1	-	-	0	-	1	-	0	-	-
108	-	-	-	-	-	-	-	1	-	0	-	-	-	-
109	-	-	-	-	-	-	-	0	-	0	-	-	-	-
110	-	-	-	-	-	-	-	2	-	1	-	-	-	-
111	-	-	-	-	-	-	-	0	-	1	-	-	-	-
112	-	-	-	-	-	-	-	0	-	-	-	-	-	-
113	-	-	-	-	-	-	-	2	-	-	-	-	-	-
114	-	-	-	-	-	-	-	-	-	-	-	-	-	-
115	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1	0	0	2	0	20	0	21	0	16	0	7	0	8

Table 73. (Cont'd)

Area	032402		Grand Total	
Date	220591			
Depth (m)	63			
Set	21			
	M	F	M	F
Length (cm)				
54	-	1	-	1
55	-	0	-	1
56	-	0	-	0
57	-	0	-	0
58	-	0	-	1
59	-	0	-	0
60	-	0	2	0
61	-	0	0	4
62	-	0	1	1
63	-	0	0	2
64	-	0	3	0
65	-	0	3	3
66	-	0	2	5
67	-	0	1	0
68	-	0	1	1
59	-	0	0	0
70	-	1	0	1
71	-	0	3	2
72	-	0	1	1
73	-	0	1	1
74	-	0	1	3
75	-	0	1	0
76	-	0	2	2
77	-	0	0	1
78	-	0	2	1
79	-	0	0	0
80	-	0	0	3
81	2	0	3	1
82	0	0	0	1
83	1	0	1	1
84	0	0	2	2
85	0	0	2	3
86	0	0	2	3
87	2	0	3	3
88	0	0	3	2
89	0	0	3	3
90	1	0	1	11
91	1	0	1	8
92	-	0	0	8
93	-	0	0	8
94	-	0	0	4
95	-	0	0	8
96	-	0	0	10
97	-	0	0	10
98	-	0	0	17
99	-	0	0	7
100	-	0	0	14
101	-	0	0	11
102	-	0	1	17
103	-	0	-	7
104	-	0	-	12
105	-	0	-	10
106	-	0	-	7
107	-	0	-	6
108	-	0	-	2
109	-	0	-	3
110	-	1	-	8
111	-	-	-	2
112	-	-	-	3
113	-	-	-	2
114	-	-	-	0
115	-	-	-	1
Total	7	3	46	249

Table 74. Length frequency summaries of spiny dogfish, Squalus acanthias, collected with sunken gillnets on the R/V W.E. RICKER, May 13-26, 3-11, 1991.

Area	032403		032403		Grand	
	Date	160591	Date	170591	Total	
Depth (m)	0		18			
Set	01		03			
Length (cm)	M	F	M	F	M	F
50	-	1	-	-	-	1
51	-	0	-	-	-	0
52	-	0	-	-	-	0
53	-	0	-	-	-	0
54	-	0	-	-	-	0
55	-	1	-	-	-	1
56	-	-	-	-	-	0
57	-	-	-	-	-	0
58	-	-	-	-	-	0
59	-	-	-	-	-	0
60	-	-	-	-	-	0
61	-	-	-	-	-	0
62	-	-	-	-	-	0
63	-	-	-	-	-	0
64	-	-	-	-	-	0
65	-	-	-	-	-	0
66	-	-	-	-	-	0
67	-	-	-	-	-	0
68	-	-	-	-	-	0
69	-	-	-	-	-	0
70	-	-	-	-	-	0
71	-	-	-	-	-	0
72	-	-	-	-	-	0
73	-	-	-	-	-	0
74	-	-	-	-	-	0
75	-	-	-	-	-	0
76	-	-	-	-	-	0
77	-	-	-	1	-	1
78	-	-	-	0	-	0
79	-	-	-	0	-	0
80	-	-	-	0	-	0
81	-	-	-	0	-	0
82	-	-	-	0	-	0
83	-	-	-	0	-	0
84	-	-	-	0	-	0
85	-	-	-	0	-	0
86	-	-	-	0	-	0
87	-	-	-	0	-	0
88	-	-	-	0	-	0
89	-	-	-	0	-	0
90	-	-	-	0	-	0
91	-	-	-	0	-	0
92	-	-	-	0	-	0
93	-	-	-	0	-	0
94	-	-	-	0	-	0
95	-	-	-	0	-	0
96	-	-	-	0	-	0
97	-	-	-	0	-	0
98	-	-	-	0	-	0
99	-	-	-	0	-	0
100	-	-	-	0	-	0
101	-	-	-	0	-	0
102	-	-	-	0	-	0
103	-	-	-	1	-	1
Total	0	2	0	2	0	4

Table 75. Length frequency summaries of spiny dogfish, Squalus acanthias, collected with bottom and midwater trawls on the F/V ISLAND SUN, June 3-11, 1991.

Area	032402		032402		032402		032402	
	Date	050691	Date	050691	Date	050691	Date	050691
Depth (m)	17	17	17	17	16	16	16	16
Set	01	02	03	04				
M	F	M	F	M	F	M	F	
Length (cm)								
68	-	-	-	-	-	-	-	-
69	-	-	-	-	-	-	-	-
70	-	-	-	-	-	-	-	-
71	-	-	1	-	-	-	-	-
72	-	-	-	-	-	-	-	-
73	-	-	-	-	-	-	-	-
74	-	-	-	-	-	-	-	-
75	-	-	-	-	-	-	-	-
76	-	-	-	-	-	-	-	-
77	-	-	-	1	-	-	-	-
78	-	-	0	-	-	-	-	-
79	-	1	-	0	-	-	-	-
80	-	1	-	0	-	-	-	-
81	-	0	-	1	-	-	-	-
82	-	0	-	0	-	-	-	1
83	-	1	-	0	-	-	-	0
84	-	0	-	0	-	-	-	0
85	-	0	-	0	-	1	-	0
86	-	0	-	0	-	0	-	0
87	-	0	-	0	-	0	-	1
88	-	0	-	0	-	1	-	0
89	-	0	-	0	-	0	-	0
90	-	1	-	0	-	0	-	0
91	-	0	-	1	-	0	-	0
92	-	1	-	0	-	0	-	0
93	-	0	-	1	-	1	-	0
94	-	1	-	1	-	-	-	0
95	-	0	-	0	-	-	-	0
96	-	0	-	1	-	-	-	1
97	-	0	-	0	-	-	-	0
98	-	1	-	0	-	-	-	0
99	-	0	-	0	-	-	-	0
100	-	1	-	0	-	-	-	0
101	-	0	-	1	-	-	-	0
102	-	1	-	0	-	-	-	1
103	-	0	-	2	-	-	-	1
104	-	0	-	-	-	-	-	-
105	-	0	-	-	-	-	-	-
106	-	1	-	-	-	-	-	-
Total	0	10	1	9	0	3	0	5

Table 75. (Cont'd.)

Area	032403		032403		Grand Total			
	Date	050691	Depth (m)	8	Set	05	100691	37
	M	F	M	F	M	F		
Length (cm)								
68	-	-	-	1	-	-	1	
69	-	-	-	-	-	-	0	
70	-	-	-	-	-	-	0	
71	-	-	-	-	1	-	0	
72	-	-	-	-	-	-	0	
73	-	-	-	-	-	-	0	
74	-	-	-	-	-	-	0	
75	-	1	-	-	-	-	1	
76	-	0	-	-	-	-	0	
77	-	1	-	-	-	-	2	
78	-	0	-	-	-	-	0	
79	-	0	-	-	-	-	1	
80	-	0	-	-	-	-	1	
81	-	0	-	-	-	-	1	
82	-	0	-	-	-	-	1	
83	-	0	-	-	-	-	1	
84	-	0	-	-	-	-	0	
85	-	0	-	-	-	-	1	
86	-	0	-	-	-	-	0	
87	-	0	-	-	-	-	1	
88	-	0	-	-	-	-	1	
89	-	1	-	-	-	-	1	
90	-	0	-	-	-	-	1	
91	-	0	-	-	-	-	1	
92	-	0	-	-	-	-	1	
93	-	0	-	-	-	-	2	
94	-	0	-	-	-	-	2	
95	-	1	-	-	-	-	1	
96	-	0	-	-	-	-	2	
97	-	0	-	-	-	-	0	
98	-	2	-	-	-	-	3	
99	-	1	-	-	-	-	1	
100	-	0	-	-	-	-	1	
101	-	1	-	-	-	-	2	
102	-	1	-	-	-	-	3	
103	-	0	-	-	-	-	3	
104	-	1	-	-	-	-	1	
105	-	-	-	-	-	-	0	
106	-	-	-	-	-	-	1	
Total	0	10	0	1	1	38		

Table 76. Length frequency summaries of spiny dogfish, Squalus acanthias, collected with sunken gillnets on the F/V ISLAND SUN, June 3-11, 1991.

Area	032402		032402		032402		032402	
	Date	070691	Date	080691	Date	080691	Date	090691
Depth (m)	31		50		6		9	
Set	.01		.03		.04		.05	
	M	F	M	F	M	F	M	F
Length (cm)								
55	-	-	-	-	-	-	-	-
56	-	-	-	-	-	-	-	-
57	-	-	-	-	-	-	-	-
58	-	-	-	-	-	-	-	-
59	-	-	-	-	-	-	-	-
60	-	-	-	-	-	-	-	-
61	-	-	-	-	-	-	-	-
62	-	-	-	-	-	-	-	-
63	-	-	-	-	-	-	-	-
64	-	-	-	-	-	-	-	-
65	-	-	-	-	-	-	-	-
66	-	-	-	-	-	-	-	-
67	-	-	-	-	-	-	-	-
68	-	-	-	-	-	-	-	-
69	-	-	-	-	-	-	-	-
70	-	-	-	-	-	-	-	-
71	-	-	-	-	-	-	-	-
72	-	-	-	-	-	-	-	-
73	-	-	-	-	-	-	-	-
74	-	-	-	-	-	-	-	-
75	1	-	-	-	-	-	-	-
76	-	-	-	-	-	-	-	-
77	-	-	1	-	-	-	-	-
78	-	-	-	-	-	-	-	-
79	-	-	-	-	-	-	-	-
80	-	-	-	-	-	-	-	-
81	-	-	-	-	-	-	-	-
82	-	-	-	-	-	-	-	-
83	-	-	-	-	-	-	-	-
84	-	-	-	-	-	-	-	-
85	-	-	-	-	1	-	-	-
86	-	-	-	-	0	-	-	-
87	-	-	-	-	0	-	-	-
88	-	-	-	-	0	-	-	-
89	-	-	-	-	0	-	1	-
90	-	-	-	-	0	-	0	-
91	-	-	-	-	0	-	0	-
92	-	-	-	-	0	-	0	-
93	-	-	-	-	0	-	0	-
94	-	-	-	-	0	-	0	-
95	-	-	-	-	0	-	1	-
96	-	-	-	-	0	-	2	-
97	-	-	-	-	0	-	0	-
98	-	-	-	-	1	-	0	-
99	-	1	-	-	1	-	2	-
100	-	1	-	-	0	-	0	-
101	-	-	-	-	1	-	0	-
102	-	-	-	-	1	-	0	-
103	-	-	-	-	1	-	0	-
104	-	-	-	-	1	-	0	-
105	-	-	-	-	0	-	0	-
106	-	-	-	-	0	-	1	-
107	-	-	-	-	1	-	-	-
Total	1	2	1	0	0	8	0	7

Table 76. (Cont'd.)

Area	032402		032402		032402		Grand Total	
	Date	100691	Date	100691	Date	100691		
Depth (m)	39	24	09	17	10			
Set	08							
	M	F	M	F	M	F	M	F
Length (cm)								
55	-	1	-	-	-	-	-	1
56	-	-	-	-	-	-	-	0
57	-	-	-	-	-	-	-	0
58	-	-	-	-	-	-	-	0
59	-	-	-	-	-	-	-	0
60	-	-	-	-	-	-	-	0
61	-	-	-	-	-	-	-	0
62	-	-	-	-	-	-	-	0
63	-	-	-	-	-	-	-	0
64	-	-	-	-	-	-	-	0
65	-	-	-	-	-	-	-	0
66	-	-	-	-	-	-	-	0
67	-	-	-	-	-	-	-	0
68	-	-	-	-	-	-	-	0
69	-	-	-	-	-	-	-	0
70	-	-	-	-	-	1	-	1
71	-	-	-	-	-	0	-	0
72	-	-	-	-	-	0	-	0
73	-	-	-	-	-	0	-	0
74	-	-	-	-	-	0	-	0
75	-	-	2	-	-	0	3	0
76	-	-	3	-	-	0	3	0
77	1	-	1	-	-	0	3	0
78	-	-	3	-	-	0	3	0
79	-	-	1	-	-	0	1	0
80	-	-	1	-	-	0	1	0
81	-	-	2	-	-	0	2	0
82	-	-	0	-	-	1	0	1
83	-	-	1	-	-	0	1	0
84	-	-	4	-	-	0	4	0
85	-	-	0	-	-	0	0	1
86	-	-	0	-	-	0	0	0
87	-	-	1	-	-	0	1	0
88	-	-	0	-	-	0	0	0
89	-	-	0	-	-	1	0	2
90	-	-	1	-	-	0	1	0
91	-	-	-	-	-	0	-	0
92	-	-	-	-	-	1	-	1
93	-	-	-	-	-	0	-	0
94	-	-	-	-	-	0	-	0
95	-	-	-	-	-	0	-	1
96	-	-	-	-	-	0	-	2
97	-	-	-	-	-	0	-	0
98	-	-	-	-	-	0	-	1
99	-	-	-	-	-	0	-	4
100	-	-	-	-	-	2	-	3
101	-	-	-	-	-	0	-	1
102	-	-	-	-	-	0	-	1
103	-	-	-	-	-	0	-	1
104	-	-	-	-	-	0	-	1
105	-	-	-	1	-	0	-	1
106	-	-	-	-	-	0	-	1
107	-	-	-	-	-	1	-	2
Total	1	1	20	1	0	7	23	26

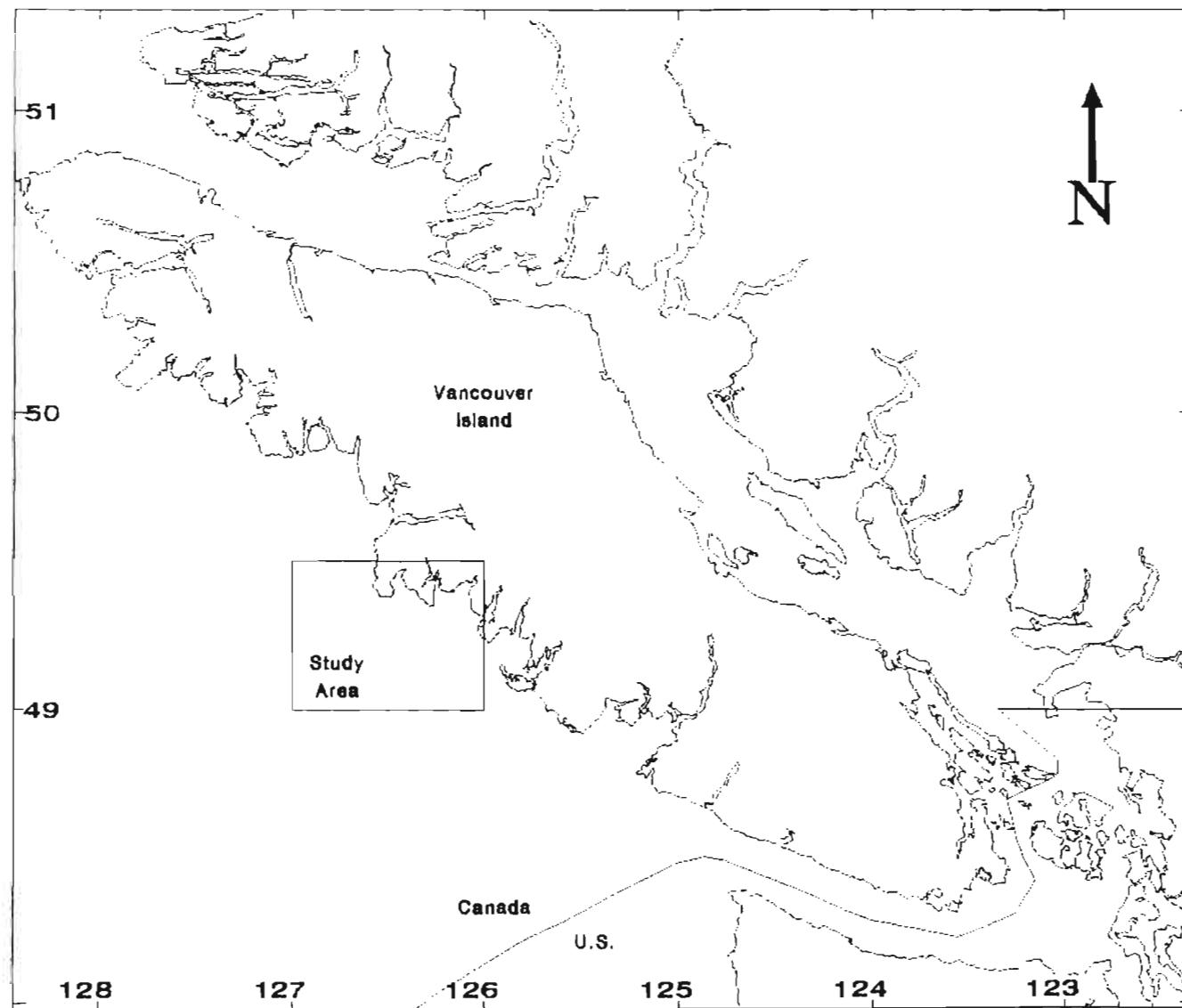


Figure 1. Location of juvenile rockfish survey area off the west coast of Vancouver Island.



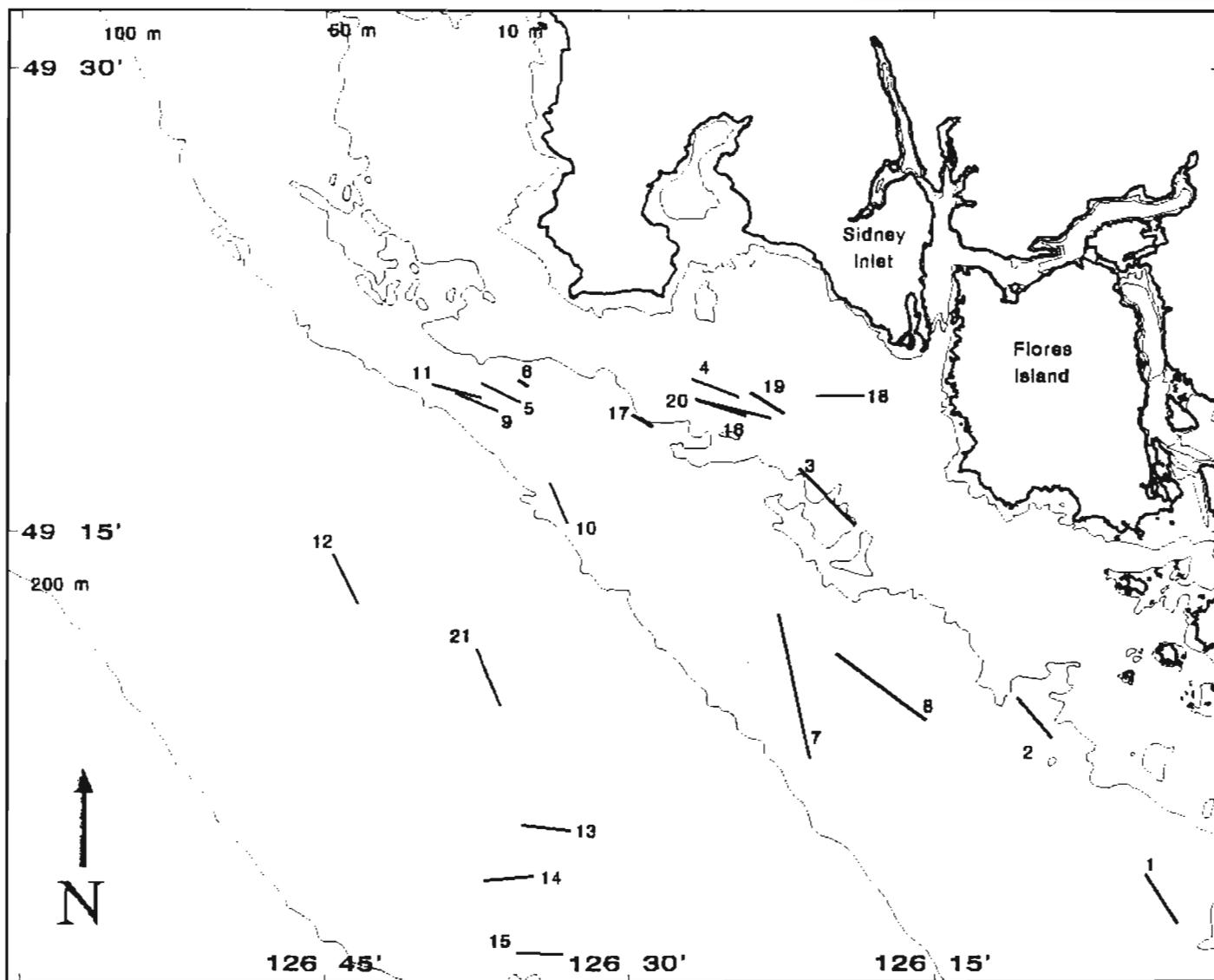


Figure 2. Tow locations for the R/V W.E. RICKER, juvenile rockfish survey, May 13-25, 1991.



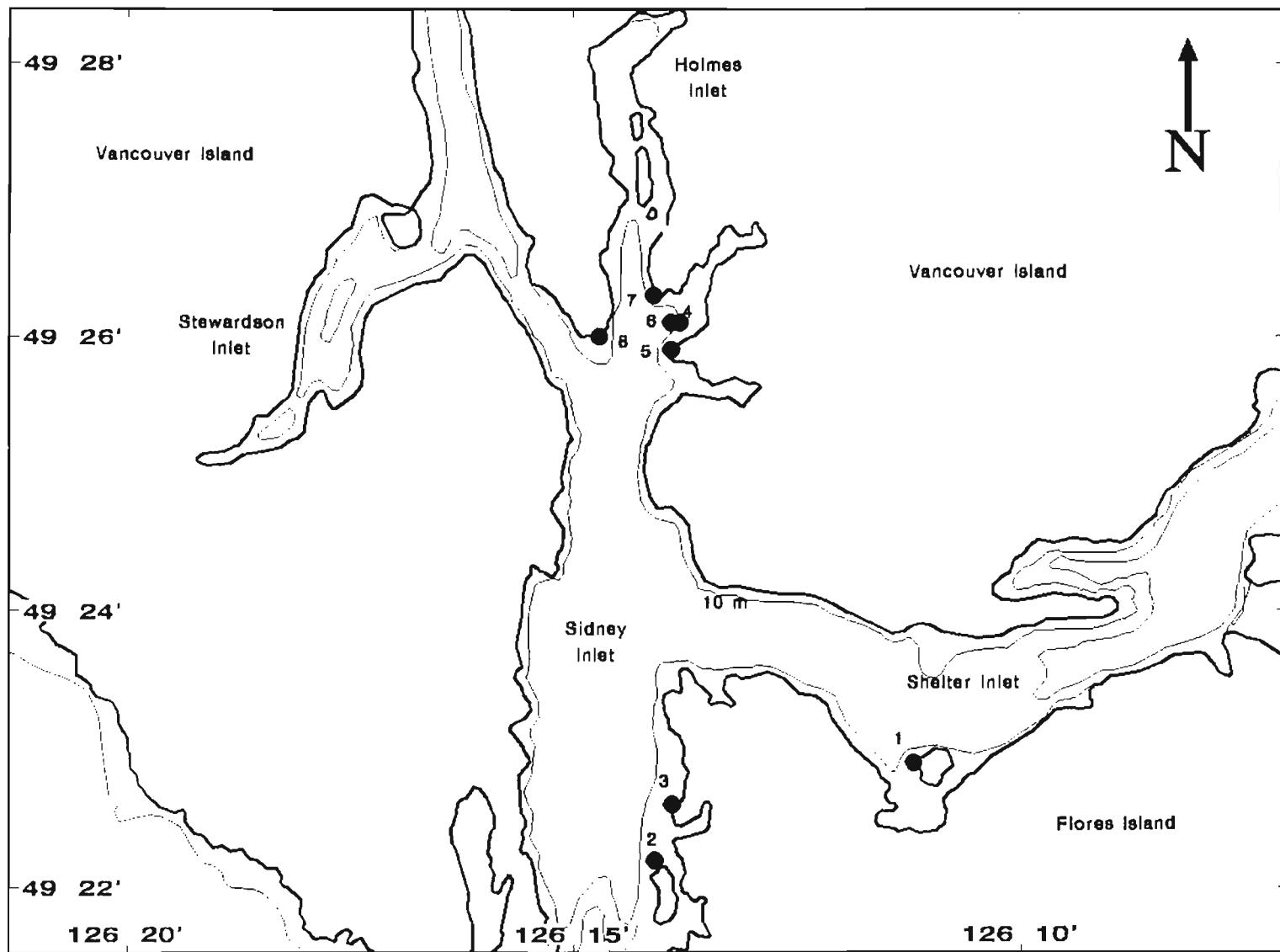


Figure 3. Gillnet set locations for the R/V W.E. RICKER, juvenile rockfish survey, May 13-25, 1991.



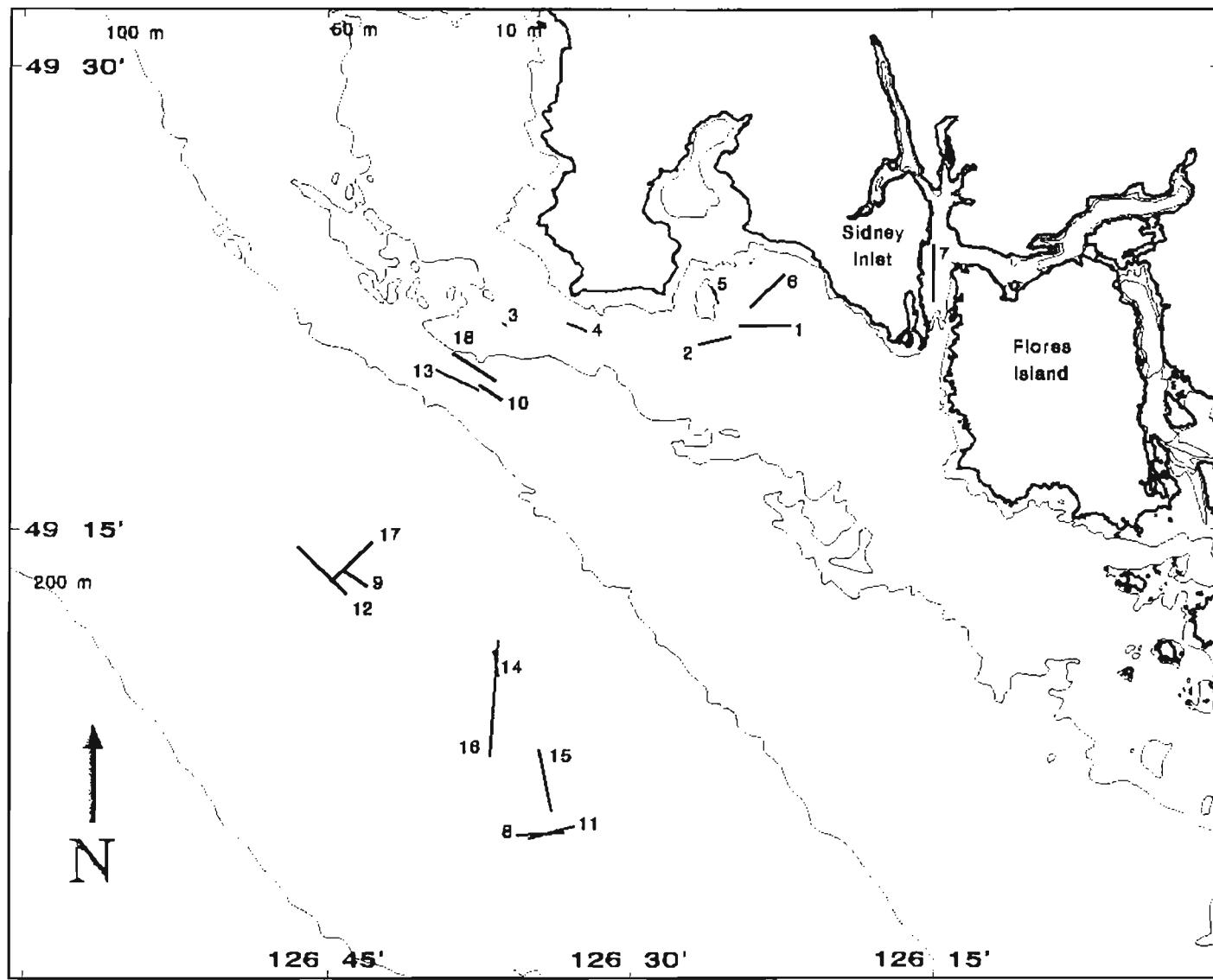


Figure 4. Tow locations for the F/V ISLAND SUN, juvenile rockfish survey, June 3-11, 1991.



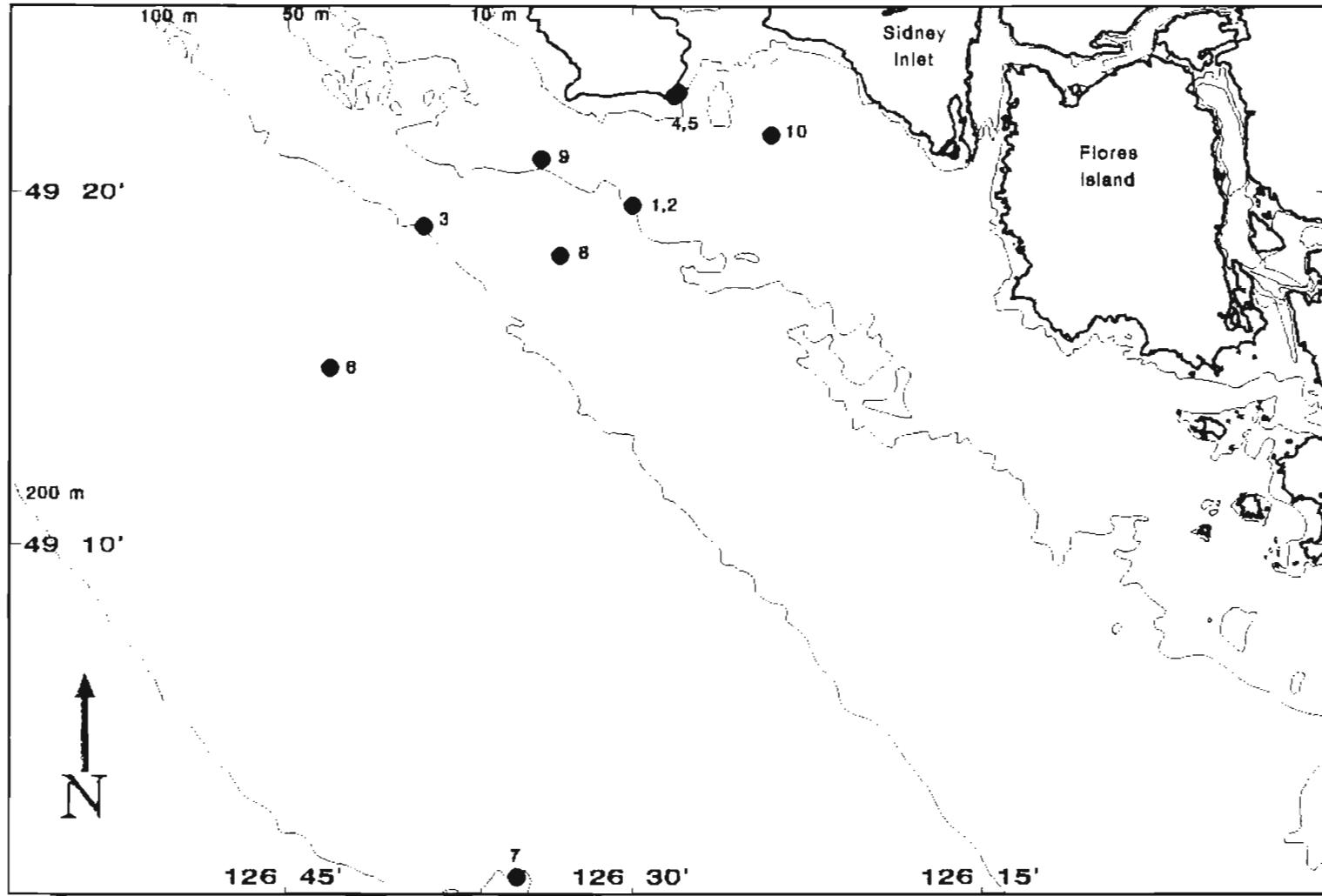


Figure 5. Gillnet set locations for the F/V ISLAND SUN, juvenile rockfish survey, June 3-11, 1991.



**Appendix Tables**

Appendix Table 1. Bridge information from bottom trawl sets from the R/V W.E. RICKER, juvenile rockfish survey, May 13-25, 1991.

Set Number		1	2	3	4			
Date		May 14	May 14	May 14	May 14			
Area (Major, Minor)		3C,24	3C,24	3C,24	3C,24			
Start Time (PDT)		8:30	10:56	13:20	15:30			
Duration (Min)		35	35	53	34			
Start N. Lat. (Deg) (Min)		49 4.0	49 9.7	49 17.1	49 20.0			
W. Long (Deg) (Min)		126 4.6	126 10.9	126 21.7	126 26.9			
Finish N. Lat. (Deg) (Min)		49 2.4	49 8.4	49 15.2	49 19.4			
W. Long (Deg) (Min)		126 3.0	126 9.8	126 18.9	126 26.6			
Haul Distance (km) (N Mi)		3.7 2.0	3.3 1.8	4.8 2.6	3.5 1.9			
Direction (Deg.True)		145	135	135	112			
Bottom Depth (m) (fm)	52- 28-	51 28	48- 26-	50 27	47- 26	47 26	46- 25-	40 22
Modal Depth (m)		52	49	47	43			
Gear Type		BT	BT	BT	BT			
Tide		..	..	..	..			
Total Catch (kg)		2220	330	116	49			
Remarks		Usable	Usable	Usable	Usable			

Appendix Table 1. (continued)

Set Number	1	2	3	4
Date	May 14	May 14	May 14	May 14
Area (Major, Minor)	3C,24	3C,24	3C,24	3C,24
<i>Sebastes alutus</i>	..	..	..	..
<i>S. brevispinis</i>	..	..	..	..
<i>S. caurinus</i>	..	..	..	..
<i>S. elongatus</i>	..	..	..	..
<i>S. emphaeus</i>	..	..	..	..
<i>S. flavidus</i>	..	..	..	1
<i>S. helvomaculatus</i>	..	..	..	..
<i>S. jordani</i>	..	..	..	..
<i>S. maliger</i>	..	4	..	4
<i>S. paucispinis</i>	..	..	..	..
<i>S. pinniger</i>	..	7	..	T
<i>S. proriger</i>	..	..	..	1
<i>S. reedi</i>	..	..	..	..
<i>S. ruberrimus</i>	..	..	..	..
<i>S. wilsoni</i>	..	..	..	..
<i>S. zacentrus</i>	..	..	..	..
Other rockfish	..	..	..	..
Curlfin sole	T	T	..	1
English sole	10	9	7	1
Pacific halibut	9	5	..	5
Pacific sanddab	20	11	6	T
Petrale sole	T	T	..	T
Rock sole	4	29	6	17
Starry flounder	..	..	3	..
Other flatfish	..	..	..	T
Kelp greenling	..	1	..	T
Lingcod	4	8	43	3
Pacific cod	..	T	T	..
Shiner perch	8	3	1	..
Walleye pollock	1	T	T	T
Wolf eel	4	..	..	..
Other roundfish	..	T	..	..
Big skate	..	7	7	..
Ratfish	..	..	..	T
Spiny dogfish	2160	246	42	16
Other selachii	..	..	..	..
Squid	..	..	1	..
Other invertebrates	..	..	..	..
Total Catch (kg)	2220	330	116	49

Appendix Table 1. (continued)

Set Number	5	6	7	8
Date	May 15	May 15	May 15	May 15
Area (Major, Minor)	3C,24	3C,24	3C,24	3C,24
Start Time (PDT)	8:45	10:03	13:55	16:06
Duration (Min)	25	8	25	64
Start N. Lat. (Deg) (Min)	49 19.2	49 19.7	49 11.6	49 9.0
W. Long (Deg) (Min)	126 35.4	126 35.0	126 21.2	126 15.4
Finish N. Lat. (Deg) (Min)	49 19.8	49 19.9	49 12.4	49 11.1
W. Long (Deg) (Min)	126 37.3	126 35.5	126 22.7	126 19.8
Haul Distance (km) (N Mi)	2.6 1.4	0.9 0.5	2.2 1.2	6.3 3.4
Direction (Deg.True)	295	290	309	304
Bottom Depth (m) (fm)	75- 72 41- 39	68- 68 37- 37	70- 77 38- 42	61- 66 33- 36
Modal Depth (m)	74	68	74	64
Gear Type	BT	BT	BT	BT
Tide	..	..	..	..
Total Catch (kg)	147	35	545	518
Remarks	Usable	Usable	Usable	Usable

Appendix Table 1. (continued)

Set Number	5	6	7	8
Date	May 15	May 15	May 15	May 15
Area (Major, Minor)	3C, 24	3C, 24	3C, 24	3C, 24
<i>Sebastes alutus</i>	..	..	..	..
<i>S. brevispinis</i>	..	..	..	..
<i>S. caurinus</i>	..	..	..	..
<i>S. elongatus</i>	..	..	..	..
<i>S. emphaeus</i>	..	..	..	..
<i>S. flavidus</i>	..	1	..	..
<i>S. helvomaculatus</i>	..	..	..	..
<i>S. jordani</i>	..	..	..	..
<i>S. maliger</i>	..	..	6	..
<i>S. paucispinis</i>	..	..	..	..
<i>S. pinniger</i>	..	2	29	..
<i>S. proriger</i>	..	T	..	..
<i>S. reedi</i>	..	..	..	..
<i>S. ruberrimus</i>	..	..	..	..
<i>S. wilsoni</i>	..	..	..	..
<i>S. zacentrus</i>	..	..	..	..
Other rockfish	..	..	..	..
Arrowtooth flounder	..	..	..	T
Dover sole	T	..	T	T
English sole	6	1	12	10
Pacific sanddab	5	1	2	25
Petrale sole	1	T	1	3
Rex sole	2	1	2	1
Rock sole	4	T	1	3
Other flatfish	..	..	..	..
Lingcod	..	..	6	18
Pacific cod	T	T	..	16
Shiner perch	..	T	T	8
Walleye pollock	T	..	T	4
Other roundfish	..	..	..	T
Big skate	..	..	..	5
Spiny dogfish	129	29	486	425
Other selachii	..	..	..	..
Squid	..	..	..	T
Other invertebrates	..	..	..	..
Total Catch (kg)	147	35	545	518

Appendix Table 1. (continued)

Set Number	9	10	11	12
Date	May 16	May 16	May 18	May 19
Area (Major, Minor)	3C,24	3C,24	3C,24	3C,24
Start Time (PDT)	9:55	11:18	14:53	11:12
Duration (Min)	30	32	34	36
Start N. Lat. (Deg) (Min)	49 18.9	49 16.6	49 19.8	49 14.3
W. Long (Deg) (Min)	126 36.5	126 33.9	126 39.7	126 44.6
Finish N. Lat. (Deg) (Min)	49 19.5	49 15.3	49 19.4	49 12.7
W. Long (Deg) (Min)	126 38.6	126 33.0	126 37.3	126 43.0
Haul Distance (km) (N Mi)	2.8 1.5	3.5 1.9	3.0 1.6	3.7 2.0
Direction (Deg.True)	300	155	105	148
Bottom Depth (m) (fm)	86- 92 47- 50	92- 96 50- 52	96- 86 52- 47	119- 119 65- 65
Modal Depth (m)	89	94	90	119
Gear Type	BT	BT	BT	BT
Tide	..	..	..	..
Total Catch (kg)	177	1118	421	190
Remarks	Usable	Usable	Usable	Usable

Appendix Table 1. (continued)

Set Number	9	10	11	12
Date	May 16	May 16	May 18	May 19
Area (Major, Minor)	3C, 24	3C, 24	3C, 24	3C, 24
<i>Sebastes alutus</i>	..	..	..	T
<i>S. brevispinis</i>	6	..	10	..
<i>S. caurinus</i>	..	..	..	..
<i>S. elongatus</i>	..	..	..	4
<i>S. emphaeus</i>	..	..	..	..
<i>S. flavidus</i>	23	7	139	..
<i>S. helvomaculatus</i>	..	..	..	..
<i>S. jordani</i>	..	..	..	..
<i>S. maliger</i>	1	..	T	..
<i>S. paucispinis</i>	..	..	..	..
<i>S. pinniger</i>	52	..	142	1
<i>S. proriger</i>	..	..	..	11
<i>S. reedi</i>	..	..	..	..
<i>S. ruberrimus</i>	..	..	34	..
<i>S. wilsoni</i>	..	..	..	T
<i>S. zacentrus</i>	..	..	..	T
Other rockfish	T	T	..	T
Arrowtooth flounder	T	T	..	48
Dover sole	T	T	..	T
English sole	35	6	13	2
Pacific halibut	..	7	..	20
Pacific sanddab	16	30	3	..
Petrale sole	4	T	..	3
Rex sole	8	4	T	29
Rock sole	T	..	..	..
Other flatfish	..	..	..	T
Eulachon	T	2	T	..
Lingcod	3	..	T	64
Pacific cod	1	10	5	2
Sablefish	..	1	..	..
Shiner perch	T	T	T	..
Walleye pollock	..	2	..	..
Other roundfish	T	T	T	..
Ratfish	..	..	..	T
Spiny dogfish	28	1049	75	6
Other selachii	..	..	..	..
Total Catch (kg)	177	1118	421	190

Appendix Table 1. (continued)

Set Number	13	14	15	16				
Date	May 19	May 19	May 20	May 20				
Area (Major, Minor)	3C,24	3C,24	3C,24	3C,24				
Start Time (PDT)	14:05	15:47	12:18	15:43				
Duration (Min)	32	30	30	30				
Start N. Lat. (Deg)	49	49	49	49				
(Min)	5.4	4.0	1.5	19.3				
W. Long (Deg)	126	126	126	126				
(Min)	32.9	34.7	35.5	26.7				
Finish N. Lat. (Deg)	49	49	49	49				
(Min)	5.6	3.8	1.5	18.8				
W. Long (Deg)	126	126	126	126				
(Min)	35.3	37.1	33.2	24.2				
Haul Distance (km)	2.8	2.8	3.0	3.0				
(N Mi)	1.5	1.5	1.6	1.6				
Direction (Deg.True)	278	266	94	110				
Bottom Depth (m)	129- 71-	130 71	136- 74-	139 76	153- 84-	149 81	47- 26-	41 22
Modal Depth (m)	129	138	151	44				
Gear Type	BT	BT	BT	BT				
Tide	..	..	..	..				
Total Catch (kg)	144	117	500	377				
Remarks	Usable	Usable	Usable	Usable				

Appendix Table 1. (continued)

Set Number	13	14	15	16
Date	May 19	May 19	May 20	May 20
Area (Major, Minor)	3C, 24	3C, 24	3C, 24	3C, 24
<i>Sebastes alutus</i>	..	..	..	..
<i>S. brevispinis</i>	..	..	..	..
<i>S. caurinus</i>	..	..	..	..
<i>S. elongatus</i>	..	..	21	..
<i>S. emphaeus</i>	..	..	..	40
<i>S. flavidus</i>	..	..	2	17
<i>S. helvomaculatus</i>	..	..	7	..
<i>S. jordani</i>	..	..	T	..
<i>S. maliger</i>	..	..	..	27
<i>S. paucispinis</i>	13	4	..	..
<i>S. pinniger</i>	2	..	..	17
<i>S. proriger</i>	T	..	173	27
<i>S. reedi</i>	..	..	T	..
<i>S. ruberrimus</i>	..	..	28	3
<i>S. wilsoni</i>	T	..	34	6
<i>S. zacentrus</i>	..	T	39	..
Other rockfish	..	..	T	..
Arrowtooth flounder	98	59	139	11
Dover sole	..	T	1	..
English sole	T	14	..	1
Pacific halibut	..	3	..	..
Petrale sole	T	5	..	..
Rex sole	10	14	8	1
Rock sole	..	..	..	4
Other flatfish	T	T	T	T
Cabezon	..	..	..	3
Eulachon	T	1	..	..
Green sturgeon	..	..	..	70
Kelp greenling	..	..	..	1
Lingcod	19	6	39	11
Pacific cod	..	8	4	..
Sablefish	..	..	4	..
Threadfin sculpin	T	..	T	..
Walleye pollock	T	T	..	..
Other roundfish	..	..	T	..
Longnose skate	..	..	..	3
Ratfish	T	..	..	..
Spiny dogfish	2	3	1	135
Other selachii	..	..	..	..
Total Catch (kg)	144	117	500	377

Appendix Table 1. (continued)

Set Number	17	18	19	20
Date	May 21	May 21	May 21	May 21
Area (Major, Minor)	3C,24	3C,24	3C,24	3C,24
Start Time (PDT)	9:04	10:47	12:18	13:22
Duration (Min)	15	30	26	47
Start N. Lat. (Deg) (Min)	49 18.4	49 19.4	49 18.8	49 19.3
W. Long (Deg) (Min)	126 28.8	126 18.4	126 22.4	126 26.7
Finish N. Lat. (Deg) (Min)	49 18.8	49 19.4	49 19.5	49 18.7
W. Long (Deg) (Min)	126 29.8	126 20.8	126 24.0	126 23.1
Haul Distance (km) (N Mi)	1.9 1.0	2.6 1.4	2.6 1.4	4.4 2.4
Direction (Deg.True)	305	285	302	104
Bottom Depth (m) (fm)	53- 52 29- 28	35- 39 19- 21	40- 35 22- 19	46- 42 25- 23
Modal Depth (m)	53	37	38	44
Gear Type	BT	BT	BT	BT
Tide	..	..	..	..
Total Catch (kg)	141	95	62	140
Remarks	Usable	Usable	Usable	Usable

Appendix Table 1. (continued)

Set Number	17	18	19	20
Date	May 21	May 21	May 21	May 21
Area (Major, Minor)	3C, 24	3C, 24	3C, 24	3C, 24
<i>Sebastes alutus</i>	T	..	..	..
<i>S. brevispinis</i>	..	..	..	..
<i>S. caurinus</i>	..	..	..	7
<i>S. elongatus</i>	..	..	..	..
<i>S. emphaeus</i>	T	..	..	..
<i>S. flavidus</i>	23	..	T	3
<i>S. helvomaculatus</i>	..	..	..	..
<i>S. jordani</i>	..	..	..	..
<i>S. maliger</i>	8	T	..	32
<i>S. paucispinis</i>	..	..	..	..
<i>S. pinniger</i>	9	T	1	22
<i>S. proriger</i>	..	T	..	..
<i>S. reedi</i>	..	..	..	..
<i>S. ruberrimus</i>	4	..	..	5
<i>S. wilsoni</i>	..	..	..	..
<i>S. zacentrus</i>	..	..	..	..
Other rockfish	..	..	..	..
English sole	..	3	5	T
Pacific halibut	..	..	..	13
Pacific sanddab	..	3	5	1
Petrale sole	..	..	2	..
Rock sole	1	..	3	4
Other flatfish	..	..	T	..
Cabezon	..	..	4	..
Kelp greenling	2	..	..	2
Lingcod	2	13	6	9
Shiner perch	..	..	1	..
Other roundfish	..	T	..	T
Big skate	..	..	..	3
Ratfish	..	..	..	1
Spiny dogfish	91	76	35	38
Other selachii	..	..	..	..
Squid	1	..	T	..
Other invertebrates	..	..	..	..
Total Catch (kg)	141	95	62	140

Appendix Table 1. (continued)

Set Number	21	22
Date	May 22	May 23
Area (Major, Minor)	3C,24	5A,11
Start Time (PDT)	12:00	11:14
Duration (Min)	38	64
Start N. Lat. (Deg) (Min)	49 11.3	51 10.9
W. Long (Deg) (Min)	126 37.5	128 41.9
Finish N. Lat. (Deg) (Min)	49 9.4	51 9.2
W. Long (Deg) (Min)	126 36.4	128 37.5
Haul Distance (km) (N Mi)	3.7 2.0	5.7 3.1
Direction (Deg.True)	157	121
Bottom Depth (m) (fm)	114- 115 62- 63	151- 145 83- 79
Modal Depth (m)	114	148
Gear Type	BT	BT
Tide	..	..
Total Catch (kg)	473	4091
Remarks	Usable	Usable

Appendix Table 1. (continued)

Set Number	21	22
Date	May 22	May 23
Area (Major, Minor)	3C, 24	5A, 11
<i>Sebastes alutus</i>	T	1664
<i>S. brevispinis</i>	T	50
<i>S. caurinus</i>	..	..
<i>S. elongatus</i>	4	..
<i>S. emphaeus</i>	..	..
<i>S. flavidus</i>	1	412
<i>S. helvomaculatus</i>	T	..
<i>S. jordani</i>	1	..
<i>S. maliger</i>	..	..
<i>S. paucispinis</i>	6	38
<i>S. pinniger</i>	T	T
<i>S. proriger</i>	180	1113
<i>S. reedi</i>	..	163
<i>S. ruberrimus</i>	19	..
<i>S. wilsoni</i>	5	..
<i>S. zacentrus</i>	7	..
Other rockfish	..	T
Arrowtooth flounder	45	38
Dover sole	T	..
Pacific halibut	30	..
Rex sole	T	..
Rock sole	T	..
Other flatfish	T	T
Lingcod	131	..
Pacific cod	9	..
Sablefish	..	T
Threadfin sculpin	1	..
Walleye pollock	..	613
Other roundfish	..	..
Ratfish	9	T
Spiny dogfish	25	T
Other selachii	..	..
Total Catch (kg)	473	4091

**Appendix Table 2.** Bridge information for bottom and midwater trawl sets from the F/V ISLAND SUN, juvenile rockfish survey, June 3-11, 1991.

Set Number		1	2	3	4
Date		June 5	June 5	June 5	June 5
Area (Major, Minor)		3C,24	3C,24	3C,24	3C,24
Start Time (PDT)		6:40	8:45	13:38	14:57
Duration (Min)		34	21	7	15
Start N. Lat. (Deg)		49	49	49	49
(Min)		21.6	21.3	21.7	21.7
W. Long (Deg)		126	126	126	126
(Min)		22.0	25.0	36.2	33.1
Finish N. Lat. (Deg)		49	49	49	49
(Min)		21.6	21.0	21.6	21.4
W. Long (Deg)		126	126	126	126
(Min)		24.6	26.6	36.0	32.1
Haul Distance (km)		3.1	2.0	0.4	1.1
(N Mi)		1.7	1.1	0.2	0.6
Direction (Deg. True)		260	255	117	110
Bottom Depth (m)	33- 29	31- 31	31- 31	26- 29	
(fm)	18- 16	17- 17	17- 17	14- 16	
Modal Depth (m)		31	31	31	27
Gear Type		BT	BT	BT	BT
Tide		Ebb	Ebb	..	..
Total Catch (kg)		502	368	6	72
Remarks	Usable	Usable	Snag-use	Snag-use	

Appendix Table 2. (continued).

Set Number	1	2	3	4
Date	June 5	June 5	June 5	June 5
Area (Major, Minor)	3C, 24	3C, 24	3C, 24	3C, 24
<i>Sebastes caurinus</i>	12	5	..	..
<i>S. elongatus</i>	..	..	..	..
<i>S. emphaeus</i>	..	T	T	13
<i>S. entomelas</i>	..	..	..	..
<i>S. flavidus</i>	..	1	..	5
<i>S. maliger</i>	7	19	1	..
<i>S. melanops</i>	..	1	..	6
<i>S. miniatus</i>	10	1	2	15
<i>S. mystinus</i>	..	1	..	..
<i>S. paucispinis</i>	..	..	..	..
<i>S. pinniger</i>	8	1	..	..
<i>S. proriger</i>	..	..	..	..
<i>S. ruberrimus</i>	..	..	..	..
Other rockfish	..	..	..	..
Arrowtooth flounder	T	..	..	..
English sole	1	..	..	..
Pacific halibut	8	25	..	..
Pacific sanddab	..	..	..	..
Petrale sole	..	..	..	..
Rex sole	..	..	..	..
Rock sole	11	1	T	..
Other flatfish	T	..	..	..
Bigfin eelpout	..	..	..	..
Cabezon	5	2	..	11
Chinook salmon	..	..	..	..
Eulachon	..	..	..	..
Lingcod	4	..	..	2
Pacific cod	..	..	..	..
Pacific herring	..	..	..	..
Pacific tomcod	..	..	..	..
Other roundfish	..	T	..	..
Longnose skate	..	..	..	..
Ratfish	21	20	..	..
Spiny dogfish	415	291	3	20
Other selachii	..	..	..	..
Invertebrates	T	..	..	..
Total Catch (kg)	502	368	6	72

**Appendix Table 2. (continued).**

Set Number		5	6	7	8			
Date		June 5	June 5	June 5	June 6			
Area (Major, Minor)		3C,24	3C,24	3C,24	3C,24			
Start Time (PDT)		16:41	17:39	19:40	12:15			
Duration (Min)		12	27	38	30			
Start N. Lat. (Deg)		49	49	49	49			
(Min)		22.9	23.3	24.2	5.2			
W. Long (Deg)		126	126	126	126			
(Min)		26.0	22.3	14.9	33.2			
Finish N. Lat. (Deg)		49	49	49	49			
(Min)		22.3	22.2	22.4	5.2			
W. Long (Deg)		126	126	126	126			
(Min)		25.6	24.1	14.9	35.6			
Haul Distance (km)		1.1	2.8	3.5	3.0			
(N Mi)		0.6	1.5	1.9	1.6			
Direction (Deg.True)		155	239	180	318			
Bottom Depth (m)	18-	11	22-	26	64-	48	132-	130
(fm)	10-	6	12-	14	35-	26	72-	71
Modal Depth (m)		15	24	56	131			
Gear Type		BT	BT	BT	BT			
Tide		..	..	..	..			
Total Catch (kg)		69	151	1364	171			
Remarks		Usable	Usable	Usable	Usable			

Appendix Table 2. (continued).

Set Number	5	6	7	8
Date	June 5	June 5	June 5	June 6
Area (Major, Minor)	3C, 24	3C, 24	3C, 24	3C, 24
<i>Sebastes caurinus</i>	3	1	..	..
<i>S. elongatus</i>	..	..	..	..
<i>S. emphaeus</i>	T	..	..	..
<i>S. entomelas</i>	..	..	..	..
<i>S. flavidus</i>	T	..	..	..
<i>S. maliger</i>	..	..	T	..
<i>S. melanops</i>	..	..	..	..
<i>S. miniatus</i>	2	1	..	..
<i>S. mystinus</i>	..	..	..	..
<i>S. paucispinis</i>	..	..	..	..
<i>S. pinniger</i>	..	..	1	..
<i>S. proriger</i>	..	..	..	..
<i>S. ruberrimus</i>	..	..	..	..
Other rockfish	..	..	..	..
Arrowtooth flounder	..	..	..	157
English sole	..	..	..	..
Pacific halibut	..	..	..	..
Pacific sanddab	..	..	..	..
Petrale sole	..	..	..	T
Rex sole	..	..	..	8
Rock sole	T	..	..	..
Other flatfish	..	..	..	T
Bigfin eelpout	..	..	421	..
Cabezon	3	..	..	..
Chinook salmon	..	..	..	..
Eulachon	..	..	..	T
Lingcod	..	..	..	..
Pacific cod	..	..	..	6
Pacific herring	..	..	..	..
Pacific tomcod	..	..	..	..
Other roundfish	..	..	..	..
Longnose skate	..	..	..	..
Ratfish	..	..	841	..
Spiny dogfish	61	149	100	T
Other selachii	..	..	..	..
Invertebrates	..	..	..	T
Total Catch (kg)	69	151	1364	171

Appendix Table 2. (continued).

Set Number	9	10	11	12
Date	June 6	June 6	June 7	June 7
Area (Major, Minor)	3C,24	3C,24	3D,25	3D,25
Start Time (PDT)	15:05	18:07	0:20	2:39
Duration (Min)	30	16	30	11
Start N. Lat. (Deg)	49	49	49	49
(Min)	13.2	19.2	5.4	12.9
W. Long (Deg)	126	126	126	126
(Min)	43.0	36.2	32.8	44.1
Finish N. Lat. (Deg)	49	49	49	49
(Min)	13.7	19.7	5.1	14.5
W. Long (Deg)	126	126	126	126
(Min)	44.3	37.4	35.0	46.5
Haul Distance (km)	2.0	1.7	2.8	3.3
(N Mi)	1.1	0.9	1.5	1.8
Direction (Deg. True)	300	312	294	322
Bottom Depth (m)	113- 113	82- 75	130- 130	119- 119
(fm)	62- 62	45- 41	71- 71	65- 65
Modal Depth (m)	113	79	130	119
Gear Type	BT	BT	BT	BT
Tide	..	..	..	..
Total Catch (kg)	133	28	127	480
Remarks	Snag-use	Usable	Usable	Usable

Appendix Table 2. (continued).

Set Number	9	10	11	12
Date	June 6	June 6	June 7	June 7
Area (Major, Minor)	3C, 24	3C, 24	3D, 25	3D, 25
<i>Sebastes caurinus</i>	..	..	..	..
<i>S. elongatus</i>	..	..	..	2
<i>S. emphaeus</i>	..	..	..	..
<i>S. entomelas</i>	..	..	..	2
<i>S. flavidus</i>	14	2	14	7
<i>S. maliger</i>	..	..	..	..
<i>S. melanops</i>	..	..	..	..
<i>S. miniatus</i>	..	..	..	..
<i>S. mystinus</i>	..	..	..	..
<i>S. paucispinis</i>	..	..	..	..
<i>S. pinniger</i>	..	..	5	2
<i>S. proriger</i>	T	..	..	1
<i>S. ruberrimus</i>	8	..	..	..
Other rockfish	T	..	..	..
Arrowtooth flounder	102	22	64	390
English sole	..	T	..	2
Pacific halibut	..	..	..	18
Pacific sanddab	..	1	..	..
Petrale sole	..	..	..	2
Rex sole	T	1	13	36
Rock sole	..	..	..	..
Other flatfish	..	..	T	T
Bigfin eelpout	..	..	..	..
Cabezon	..	..	..	..
Chinook salmon	..	..	..	..
Eulachon	..	..	..	..
Lingcod	9	..	6	12
Pacific cod	..	..	2	T
Pacific herring	..	..	..	..
Pacific tomcod	T	..	T	..
Other roundfish	T	..	T	T
Longnose skate	..	..	9	..
Ratfish	..	..	9	T
Spiny dogfish	T	2	5	6
Other selachii	..	..	..	..
Invertebrates	..	T	..	..
Total Catch (kg)	133	28	127	480

Appendix Table 2. (continued).

Set Number		13	14	15	16	
Date		June 7	June 8	June 8	June 8	
Area (Major, Minor)		3C, 24	3C, 24	3C, 24	3C, 24	
Start Time (PDT)		4:53	12:28	16:33	23:35	
Duration (Min)		30	16	36	28	
Start N. Lat. (Deg)		49	49	49	49	
(Min)		19.5	11.1	7.9	11.4	
W. Long (Deg)		126	126	126	126	
(Min)		37.4	36.7	34.4	36.4	
Finish N. Lat. (Deg)		49	49	49	49	
(Min)		20.2	10.3	5.9	7.7	
W. Long (Deg)		126	126	126	126	
(Min)		39.6	36.5	33.8	36.9	
Haul Distance (km)		3.1	1.5	3.9	3.3	
(N Mi)		1.7	0.8	2.1	1.8	
Direction (Deg. True)		315	184	167	182	
Bottom Depth (m)	84-	95	117-	110	124-	128
(fm)	46-	52	64-	60	68-	70
Modal Depth (m)		90	114	126	119	
Net Depth (m)			99-	91	102-	106
(fm)			54-	50	56-	58
Modal Net Depth (m)			95	104	82	
Gear Type		BT	MW	MW	MW	
Tide		..	..	..	..	
Total Catch (kg)		69	499	174	25	
Remarks		Usable	Usable	Usable	Usable	

Appendix Table 2. (continued).

Set Number	13	14	15	16
Date	June 7	June 8	June 8	June 8
Area (Major, Minor)	3C, 24	3C, 24	3C, 24	3C, 24
<i>Sebastes caurinus</i>	..	..	..	..
<i>S. elongatus</i>	..	..	..	..
<i>S. emphaeus</i>	..	T	..	..
<i>S. entomelas</i>	..	..	..	..
<i>S. flavidus</i>	4	499	..	23
<i>S. maliger</i>	..	..	..	..
<i>S. melanops</i>	..	..	..	..
<i>S. miniatus</i>	..	..	..	..
<i>S. mystinus</i>	..	..	..	..
<i>S. paucispinis</i>	..	T	6	..
<i>S. pinniger</i>	3	T	15	..
<i>S. proriger</i>	..	..	..	..
<i>S. ruberrimus</i>	..	..	..	..
Other rockfish	..	T	..	..
Arrowtooth flounder	T	..	..	T
English sole	25	..	..	..
Pacific halibut	..	..	..	..
Pacific sanddab	12	..	..	..
Petrale sole	T	..	..	..
Rex sole	4	..	..	..
Rock sole	T	..	..	..
Other flatfish	T	..	..	..
Bigfin eelpout	..	..	..	..
Cabezon	..	..	..	..
Chinook salmon	..	T	7	..
Eulachon	..	..	..	1
Lingcod	..	..	10	..
Pacific cod	..	..	..	..
Pacific herring	..	..	136	1
Pacific tomcod	1	..	..	..
Other roundfish	T	..	..	..
Longnose skate	..	..	..	..
Ratfish	T	..	..	..
Spiny dogfish	20	..	..	..
Other selachii	..	..	..	..
Invertebrates	T	..	..	T
Total Catch (kg)	69	499	174	25

Appendix Table 2. (continued).

Set Number	17	18
Date	June 9	June 10
Area (Major, Minor)	3C, 24	3C, 24
Start Time (PDT)	2:12	10:58
Duration (Min)	20	42
Start N. Lat. (Deg) (Min)	49 14.6	49 20.7
W. Long (Deg) (Min)	126 42.8	126 38.7
Finish N. Lat. (Deg) (Min)	49 13.3	49 19.8
W. Long (Deg) (Min)	126 44.9	126 36.5
Haul Distance (km) (N Mi)	3.5 1.9	3.1 1.7
Direction (Deg. True)	221	92
Bottom Depth (m) (fm)	113- 62- 119 62- 65	60- 33- 73 33- 40
Modal Depth (m)	124	67
Net Depth (m) (fm)	75- 41- 77 41- 42	29- 16- 55 16- 30
Modal Net Depth (m)	76	48
Gear Type	MW	MW
Tide	..	..
Total Catch (kg)	40	49
Remarks	Usable	Usable

Appendix Table 2. (continued).

Set Number	17	18
Date	June 9	June 10
Area (Major, Minor)	3C, 24	3C, 24
<i>Sebastes caurinus</i>	..	..
<i>S. elongatus</i>	..	..
<i>S. emphaeus</i>	..	..
<i>S. entomelas</i>	..	24
<i>S. flavidus</i>	40	13
<i>S. maliger</i>	..	..
<i>S. melanops</i>	..	..
<i>S. miniatus</i>	..	..
<i>S. mystinus</i>	..	..
<i>S. paucispinis</i>	..	..
<i>S. pinniger</i>	..	..
<i>S. proriger</i>	..	12
<i>S. ruberrimus</i>	..	..
Other rockfish	..	..
Arrowtooth flounder	..	..
English sole	..	..
Pacific halibut	..	..
Pacific sanddab	..	..
Petrale sole	..	..
Rex sole	..	..
Rock sole	..	..
Other flatfish	..	..
Bigfin eelpout	..	..
Cabezon	..	..
Chinook salmon	..	..
Eulachon	T	..
Lingcod	..	..
Pacific cod	..	..
Pacific herring	..	..
Pacific tomcod	..	..
Other roundfish	..	..
Longnose skate	..	..
Ratfish	..	..
Spiny dogfish	..	..
Other selachii	..	..
Invertebrates	..	..
Total Catch (kg)	40	49

Appendix Table 3. Bridge log information and catch (number of fish) for gillnet sets from the F/V W.E. RICKER, May 13-26, 1991.

Bridge Log Information

Set	Date Set	Location	Mesh Size	Depth	Soak Time
1	910515	49°22.9, 126°11.2	small	~9 m	12 h
2	910516	49°22.2, 126°14.1	small	6-12 m	12 h
3	910516	49°22.6, 126°13.9	small	21-43 m	12 h
4	910517	49°26.1, 126°13.8	small	~18-27 m	30 h
5	910518	49°25.9, 126°13.9	small	6-15 m	12 h
6	910519	49°26.1, 126°13.9	small	6-12 m	12 h
7	910519	49°26.3, 126°14.1	small	6 m	12 h
8	910520	49°26.0, 126°14.7	small	12 m	12 h
9	910521	49°42.6, 126°37.4	small	~18-27 m	12 h

Catch (number of fish)

Set #	1	2	3	4	5	6	7	8	9	Total
<i>Sebastodes caurinus</i>	0	32	0	9	0	8	4	2	4	59
<i>S. flavidus</i>	2	0	0	18	3	2	17	0	1	43
<i>S. maliger</i>	0	0	0	4	0	0	2	0	0	6
<i>S. melanops</i>	0	0	0	0	0	19	0	0	0	19
<i>S. miniatus</i>	0	0	0	0	0	0	1	0	0	1
<i>S. paucispinis</i>	1	0	1	0	1	0	1	0	1	5
<i>S. pinniger</i>	0	0	1	0	0	2	1	0	0	4
<i>S. proriger</i>	0	0	0	2	0	0	0	0	0	2
<i>S. variegatus</i>	0	0	0	0	1	0	0	0	0	1
Curlfin sole	0	0	0	0	0	0	0	0	2	2
Slender sole	0	0	1	0	0	0	0	0	0	1
English sole	0	0	1	0	0	0	0	0	0	1
Lingcod	0	1	0	2	0	1	0	0	1	5
Pac. staghorn sculpin	0	0	5	0	0	0	0	0	0	5
Kelp perch	0	0	0	0	0	5	0	0	0	5
Hake	1	0	1	0	2	0	0	0	0	4
Northern sculpin	0	0	0	0	4	0	0	0	0	4
Kelp greenling	0	1	0	0	0	2	0	0	0	3
Red Irish lord	0	2	0	0	0	0	0	0	0	2
Pile perch	0	0	0	0	0	1	0	0	1	2
Sturgeon poacher	0	0	1	0	0	0	0	0	0	1
Striped seaperch	0	0	0	0	0	1	0	0	0	1
Spotted ratfish	13	0	75	7	4	0	1	1	2	103
Spiny dogfish	2	0	2	0	0	0	0	0	0	4
Longnose skate	0	0	2	0	0	0	0	0	0	2

Notes:

All sets were soaked overnight except set 6 and set 8, which were set at dawn and retrieved at dusk.  
 Only a small portion of the net was recovered from Set 2.  
 75 ratfish in Set 3 is an estimate, 1 tub (16 fish) were saved and measured.

Appendix Table 4. Bridge log information for gillnet sets from the F/V ISLAND SUN, June 3-11, 1991.

Set	Date Set	Location	Mesh Size	Depth	Soak Time
1	910606	49°19.6, 126°30.0	large	55-59 m	28 h
2	910606	49°19.6, 126°30.0	small	57 m	28 h
3	910607	49°19.0, 126°39.0	large	91 m	20 h
4	910607	49°22.8, 126°28.0	small	11 m	13 h
5	910608	49°22.7, 126°28.2	small	15-18 m	31 h
6	910608	49°15.0, 126°43.1	large	18-19 m	24 h
7	910608	49°06.3, 126°34.9	large	121 m	17 h
8	910609	49°18.8, 126°33.1	large	71 m	19 h
9	910609	49°20.9, 126°33.9	large	42-46 m	17 h
10	910609	49°21.6, 126°24.0	small	31 m	14 h

Catch (number of fish)

Set No.	1	2	3	4	5	6	7	8	9	10	Total
<i>S. brevispinis</i>	0	0	4	0	0	0	0	0	0	0	4
<i>S. caurinus</i>	0	0	0	3	4	0	0	0	0	0	7
<i>S. entomelas</i>	0	0	0	0	0	0	0	1	0	0	1
<i>S. flavidus</i>	0	0	12	0	0	24	0	0	0	0	36
<i>S. helvomaculatus</i>	0	0	0	0	0	3	2	0	0	0	5
<i>S. maliger</i>	0	0	1	0	0	0	0	1	1	0	3
<i>S. melanops</i>	0	0	0	10	0	0	0	0	0	0	10
<i>S. paucispinis</i>	0	0	1	0	0	1	19	0	0	0	21
<i>S. pinniger</i>	0	0	17	0	0	6	16	0	5	0	44
<i>S. proriger</i>	0	0	1	0	0	0	0	0	0	0	1
<i>S. ruberrimus</i>	0	0	0	0	0	2	0	0	1	0	3
Pacific sanddab	0	0	0	0	0	0	0	23	0	1	24
Rex sole	0	0	1	0	0	0	0	0	0	0	1
Pacific halibut	0	0	0	0	0	1	0	0	0	0	1
Lingcod	0	0	2	2	0	7	4	8	0	0	23
Cabezon	0	0	0	2	0	0	0	0	0	0	2
Brown Irish lord	0	0	0	1	0	0	0	0	0	0	1
Spiny dogfish	4	0	1	8	7	0	0	2	21	7	50
Spotted ratfish	0	0	1	0	0	1	0	2	2	0	6
Longnose skate	0	0	0	0	0	0	0	2	0	0	2

Notes:

All sets were soaked overnight.  
Set 2 was not recovered.

Appendix Table 5. Common and scientific names of fish species encountered during the juvenile rockfish surveys by the R/V W.E. RICKER, May 13-26, 1991, and the F/V ISLAND SUN, June 3-11, 1991.

Common Name	Scientific Name
<b>Rockfishes</b>	
Pacific ocean perch	<i>Sebastes alutus</i>
Redbanded rockfish	<i>S. babcocki</i>
Silvergray rockfish	<i>S. brevispinis</i>
Copper rockfish	<i>S. caurinus</i>
Darkblotched rockfish	<i>S. crameri</i>
Greenstriped rockfish	<i>S. elongatus</i>
Puget Sound rockfish	<i>S. emphaeus</i>
Widow rockfish	<i>S. entomelas</i>
Yellowtail rockfish	<i>S. flavidus</i>
Rosethorn rockfish	<i>S. helvomaculatus</i>
Shortbelly rockfish	<i>S. jordani</i>
Quillback rockfish	<i>S. maliger</i>
Black rockfish	<i>S. melanops</i>
Vermilion rockfish	<i>S. miniatus</i>
Blue rockfish	<i>S. mystinus</i>
Bocaccio	<i>S. paucispinis</i>
Canary rockfish	<i>S. pinniger</i>
Redstripe rockfish	<i>S. proriger</i>
Yellowmouth rockfish	<i>S. reedi</i>
Yelloweye rockfish	<i>S. ruberrimus</i>
Harlequin rockfish	<i>S. variegatus</i>
Pygmy rockfish	<i>S. wilsoni</i>
Sharpchin rockfish	<i>S. zacentrus</i>
<b>Flatfishes</b>	
Arrowtooth flounder	<i>Atheresthes stomias</i>
Pacific sanddab	<i>Citharichthys sordidus</i>
Slender sole	<i>Eopsetta exilis</i>
Petrale sole	<i>Eopsetta jordani</i>
Rex sole	<i>Errex zachirus</i>
Flathead sole	<i>Hippoglossoides elassodon</i>
Pacific halibut	<i>Hippoglossus stenolepis</i>
Butter sole	<i>Isopsetta isolepis</i>
Dover sole	<i>Microstomus pacificus</i>
Starry Flounder	<i>Platichthys stellatus</i>
Rock sole	<i>Pleuronectes bilineatus</i>
English sole	<i>Pleuronectes vetulus</i>
Curlfin sole	<i>Pleuronichthys decurrens</i>
Sand sole	<i>Psettichthys melanostictus</i>
<b>Roundfish</b>	
Sablefish	<i>Anoplopoma fimbria</i>
Pacific cod	<i>Gadus macrocephalus</i>
Pacific hake	<i>Merluccius productus</i>
Pacific tomcod	<i>Microgadus proximus</i>
Lingcod	<i>Ophiodon elongatus</i>
Walleye pollock	<i>Theragra chalcogramma</i>

Appendix Table 5. (continued).

Common Name	Scientific Name
Selachii	
Spotted ratfish	<i>Hydrolagus colliei</i>
Big skate	<i>Raja binoculata</i>
Longnose skate	<i>R. rhina</i>
Spiny dogfish	<i>Squalus acanthias</i>
Other fish	
Green sturgeon	<i>Acipenser medirostris</i>
Whitebait smelt	<i>Allosmerus elongatus</i>
American shad	<i>Alosa sapidissima</i>
Wolf eel	<i>Anarrhichthys ocellatus</i>
Kelp perch	<i>Brachyistius frenatus</i>
Pacific herring	<i>Clupea pallasi</i>
Shiner perch	<i>Cymatogaster aggregata</i>
Striped seaperch	<i>Embiotoca lateralis</i>
Red Irish lord	<i>Hemilepidotus hemilepidotus</i>
Brown Irish lord	<i>Hemilepidotus spinosus</i>
Kelp greenling	<i>Hexagrammos decagrammus</i>
Northern sculpin	<i>Icelinus borealis</i>
Threadfin sculpin	<i>Icelinus filamentosus</i>
Pacific staghorn sculpin	<i>Leptocottus armatus</i>
Bigfin eelpout	<i>Lycodes cortezianus</i>
Chinook salmon	<i>Oncorhynchus tshawytscha</i>
Sturgeon poacher	<i>Podathecus acipenserinus</i>
Pile perch	<i>Racochilus vacca</i>
Cabezon	<i>Scorpaenichthys marmoratus</i>
Eulachon	<i>Thaleichthys pacificus</i>

